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The American Association of Colleges for Teacher Education (AACTE) Media Project was developed to determine whether (1) the gap between the producer and the user of educational innovations could be bridged; (2) a meaningful way to present the results of educational research to the user could be designed; and (3) the integrated and functional use of media in instruction could be demonstrated effectively. Asahel D. Woodruff's model of behavior as an energy system characterized by perception, concept formation, decisionmaking, trial, and feedback was adopted to accomplish these purposes. The first two components of this model were used for a series of regional workshops in teacher education. Major content components of the workshop format were interaction analysis, nonverbal classroom communication, microteaching, and simulation, each presented by an expert in the development of that particular area, backed up by an instructional materials specialist. Small groups of participants viewed a video tape presentation of each content model, followed by discussion. When all participants had been exposed to all four models, content and design and media utilization were analyzed in large-group discussion, and alternative models were presented. The evaluation component substantiated the workshops' effectiveness. (Included are detailed presentations of each component of the workshop format plus bibliographies.) (SG)

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PROFESSIONAL TEACHER EDUCATION II

A Programed Design Developed by the
AACTE Teacher Education and Media Project

The American Association of Colleges for Teacher Education
1201 Sixteenth Street, N.W., Washington, D.C. 20036

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FOREWORD

The American Association of Colleges for Teacher Education has had a long and continuous interest in improving the preparation of our country's teachers. The AACTE-sponsored TEAM Project stimulated considerable interest within the community of teacher education, particularly in reference to the undergraduate professional curriculum. In assessing the impact of this effort, it appeared that the TEAM Project offered considerable information concerning recent research conducted in teacher education but relatively little knowledge about how to go about implementing that research. This led to a second AACTE Project — "A Project to Improve Instruction in Teacher Education Through the Increased and Better Use of the New Educational Media." This second project was an attempt to demonstrate how to use various media in instruction to enable people to make intelligent decisions concerning the implementation of new programs. Further, they could research the effectiveness of a dissemination design.

Part I of this report describes the rationale for content selection and offers a description of the dissemination format. Part II is an effort to describe the Workshop in Teacher Education. The working papers are contained in this section and are the heart of the substantive effort. Special thanks are extended to the authors for their fine contribution to the success of the workshops: Interaction Analysis — Dr. Dwight W. Allen, dean, School of Education, University of Massachusetts; Nonverbal Communication — Dr. Charles M. Galloway, associate professor of education, Ohio State University; Simulation — Dr. Donald R. Cruickshank, assistant dean for research and development, College of Education, University of Tennessee; Structural and Learning Analysis — Dr. Asahel D. Woodruff, professor of educational psychology, University of Utah; and Media Analysis — Dr. Vernon S. Gerlach, professor of educational psychology, Arizona State University.

Part III of the report addresses itself to the effectiveness of this effort at disseminating knowledge and stimulating change. This section was the prime responsibility of Miss Freda Douglas, research assistant for the Project.

Part IV offers some general conclusions and specific recommendations which have grown out of this experience.

Particular thanks must be extended to our colleagues in industry, especially to Mr. Gordon Tubbs of the Eastman Kodak Company; Mr. Benjamin Schultz of the Tecnifax Company; and Mr. Fred Bergstrasser, of the Ampex Corporation at the time of the Project. These gentlemen, working very closely with Mr. Richard A. Cornell, assistant director of the Project, provided invaluable counsel and guidance as well as considerable material assistance in the preparation of this report.

This entire project has been an exciting and stimulating learning experience to those of us on the project staff. We hope it has been as meaningful to the AACTE membership.

Walter J. Mars, Associate Secretary
The American Association of
Colleges for Teacher Education

December 1968

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Part I

INTRODUCTION

The American Association of Colleges for Teacher Education has a longstanding commitment to improving the education of teachers. Through its Committee on Studies, it has mounted a number of efforts aimed at gathering and making available information about ongoing as well as new and innovative programs in teacher education. The AACTE itself, with support from the U.S. Office of Education, engaged in "A Project to Improve the Professional Sequence in Pre-Service Teacher Education Through the Selective and Planned Use of New Media."[1] This project, the TEAM (Teacher Education and Media) Project, was conducted between January 1963 and October 1965.

Essentially, the TEAM Project offered a new way of approaching the undergraduate professional teacher education program. It presented an organized statement of the content and experiences (curriculum) relevant to the achievement of stated behavioral objectives (teacher competencies) for pre-service teacher education. TEAM brought together within the context of five major areas /̲ (a) The Analytical Study of Teaching, (b) Structures and Uses of Knowledge, (c) Concepts of Human Development and Learning, (d) Designs for Teaching-Learning, and (e) The Demonstration and Evaluation of Teaching Competencies/̅ much of the most recent educational research.

The AACTE felt that while "the interaction and channels of communication within the teacher education community provides an opportunity for innovators to be heard and to influence others,"[2] the impact of innovation needed to be increased. On the basis of extensive visitations to campuses throughout the country and a considerable number of presentations at conferences, conventions, and educational meetings of all kinds by the TEAM staff, it was concluded that, although the teacher education community had considerable information about the innovations being developed by educational researchers, for the most part it lacked sufficient knowledge about these innovations to allow for implementation. In an effort to resolve this problem, the AACTE mounted a second project in June 1966.

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[1] The American Association of Colleges for Teacher Education. A Proposal for the Revision of the Pre-Service Professional Component of a Program of Teacher Education: A Project to Improve the Professional Sequence in Pre-Service Teacher Education Through the Selective and Planned Use of New Media. (Edited by Herbert F. LaGrone.) Washington, D.C.: The Association, 1964. 66 pp.

[2] Pomeroy, Edward C. and Burdin, Joel L. "New Programs Are Reshaping Teacher Education." NEA Journal 57: 15-18; May 1968.

This project, also operating under a contract from the U.S. Office of Education (Title VII B - NDEA - Dissemination Research Branch), was designed to reduce the time lag between innovation and implementation and to quicken the pace of educational change among teacher educators in all types of institutions. While formally titled "A Project to Improve Instruction in Teacher Education Through the Increased and Better Use of the New Educational Media," this effort became known as the AACTE Media Project.

The task which the AACTE Media Project set for itself is best stated in the following three questions:

1. Could the gap be bridged between the "producer" of educational innovation and the intended audience, the "user"?
2. Could a system be designed which would present the results of educational research to the "user" in a meaningful, knowledgeable, and understandable way?
3. Could the integrated and functional use of media in instruction be effectively demonstrated?

APPROACH

In considering the first question, the project defined the term "gap" as "the difference between." That is, the educational gap exists, at least in part, because the researcher and the practicing teacher educator rarely have an opportunity to get together for extended and meaningful discussion. Therefore, a vehicle had to be found which would bring the two elements, the researcher and the practitioner, together. A workshop in teacher education was selected since it seemed to promise a maximum amount of interaction between presentors and participants.

The practical limitations of time, resources, and opportunity to make available to teacher educators throughout the nation the talents of one or more selected innovators became immediately evident. Solving this problem provided the opportunity to demonstrate a really functional use of the new technology.

In planning and designing this workshop in teacher education, two fundamental assumptions were made. The first was that dissemination of research results has been primarily by the "written report," which fewer and fewer people have either the time or inclination to read, and that relatively little "demonstration" has been conducted as a means of disseminating. Second, the project assumed that in the holding of educational conferences, meetings, conventions, workshops, and seminars (and for that matter many classes), we too often ignore or do real violence to what we know about how learning takes place. We tend to talk about our material and talk at our intended audience, giving limited consideration to the acquisition of new knowledge. The effect of our efforts has been to provide considerable information about but little real knowledge of our subject. The result has been a lack of sufficient understanding of the content to make intelligent decisions concerning implementation.

On the basis of these assumptions, it was determined that whatever was selected as the substantive content of the workshop should be presented in a manner which would allow for real or simulated demonstration, and that such presentation should be designed in a manner which was consistent with an accepted approach to learning. It soon became evident that the project was dealing with both teaching and learning. Teaching was defined as the facilitation of learning. Thus, the workshop design had, as a major concern, participant learning! Since learning requires conditions which make behavioral development possible, the workshop design was developed in concert with a model of human behavior. The Woodruff cybernetic cycle of behavior model[3] (Figure 1) was adopted since it had been the working model of the original TEAM Project. It was structured in a fashion which allowed for participant freedom and provided a context within which the utilization of media and the new technology could be presented in a visible and rational manner.

On the basis of a large body of psychological evidence, Woodruff[4] describes human behavior as a cybernetic energy system in the form of a cycle (Figure 1) which is characterized by:

1. Perception: Perceptual input through the senses.
2. Concept Formation: Internal storage and organization function (thinking, consciously or subconsciously; conditioning; and memorizing) which establishes mediating variables, concepts, conditioned operants, memorized data, and vocabulary.
3. Decision Making: Response or output function which consists of:
   a. Use of the conceptual mediating variables in setting up an intent or goal.
   b. Use of the conditioned variables in executing the intent and moving toward the goal.
   c. Use of the memory variables (information and vocabulary) in communicating intents and other thoughts.
4. Trial: Impact on some part of the external environment, with a consequence of some kind.
5. Feedback: Feedback via the input channels from the impact and consequence.

The project accepted the position taken by Woodruff that concepts form through perception and thinking. It was accepted —

> in harmony with the basic literature...that the phase of the cycle pattern in the human cybernetic system (namely: perception, concept formation, use of concepts in making decisions, the execution of decisions, and the perception of the consequences of one's actions) reveal real interdependencies that can prevent learning if they are ignored and not provided for.

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[3] Woodruff, Asahel D. "The Use of Concepts in Teaching and Learning." Journal of Teacher Education 15: 81-99; March 1964.

[4] The American Association of Colleges for Teacher Education. Professional Teacher Education: A Programed Design Developed by the AACTE Teacher Education and Media Project. The Association, 1968. p. 18.

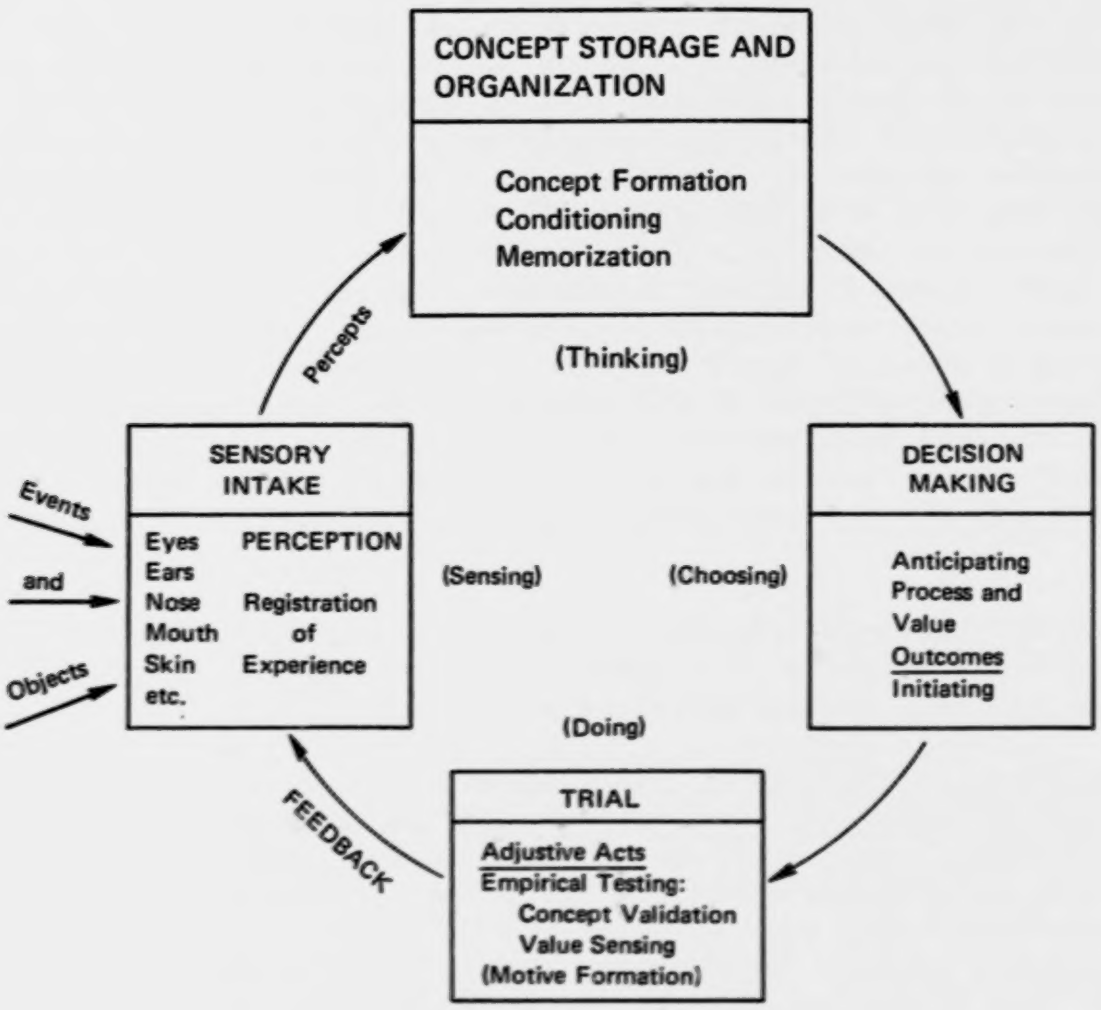
CONCEPT STORAGE AND ORGANIZATION
Concept Formation
Conditioning
Memorization
(Thinking)
Percepts
SENSORY INTAKE
Events
and
Objects
Eyes
Ears
Nose
Mouth
Skin
etc.
PERCEPTION
Registration of Experience
(Sensing)
(Choosing)
DECISION MAKING
Anticipating
Process and
Value
Outcomes
Initiating
(Doing)
FEEDBACK
TRIAL
Adjustive Acts
Empirical Testing:
Concept Validation
Value Sensing
(Motive Formation)

Figure 1. The Cognitive Cycle in Behavior and Learning

> More explicitly: A concept of something cannot form until its perceptual elements have been fed into the system by means of sense perception. Verbal efforts to substitute for this direct sense-perception [typical of most of our teaching]...will not succeed. This is so because a person cannot make a decision about a particular matter until he has meaningful concepts about that matter...further...on the basis of the same psychological literature...concepts cannot be transmitted from one person to another...they must be perceived by each person from experiences with the real referents or good portrayals of them.[5]

The role of the project, in view of this rationale, and in seeking an answer to the second question, "Could a system be designed which would present the results of educational research to the 'user' in a meaningful, knowledgeable, and understandable way?" was to select an innovation (or innovations) developed by recent educational research, program it in a manner which provided for maximum perceptual input, and engage in meaningful interaction with workshop participants for the purpose of establishing as clear a conceptual understanding of the innovation as possible.

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[5] Woodruff, Asahel D. "Accreditation by Evaluation of the Product: What it Means for Teacher Education Programs." Teacher Education: Issues and Innovations. Twenty-first Yearbook of The American Association of Colleges for Teacher Education. Washington, D.C.: The Association, 1968. pp. 237-45.

The meaning of dissemination is to make known, hopefully in the most knowledgeable manner which can be effected. It is not to require; it is not to decide. Educational innovations are to be evaluated by educators. They are to be judged useful and meaningful in terms of the individual educator's own philosophy of education and should be used only if they can improve a program of education. The project, therefore, was seen as properly dealing with only the first two phases of the Woodruff model — perceptual input and concept formation, as illustrated in Figure 2. The two remaining steps, Decision Making and Trial, were, as they should be, left to the workshop participants to carry out in their own programs at their own institutions.

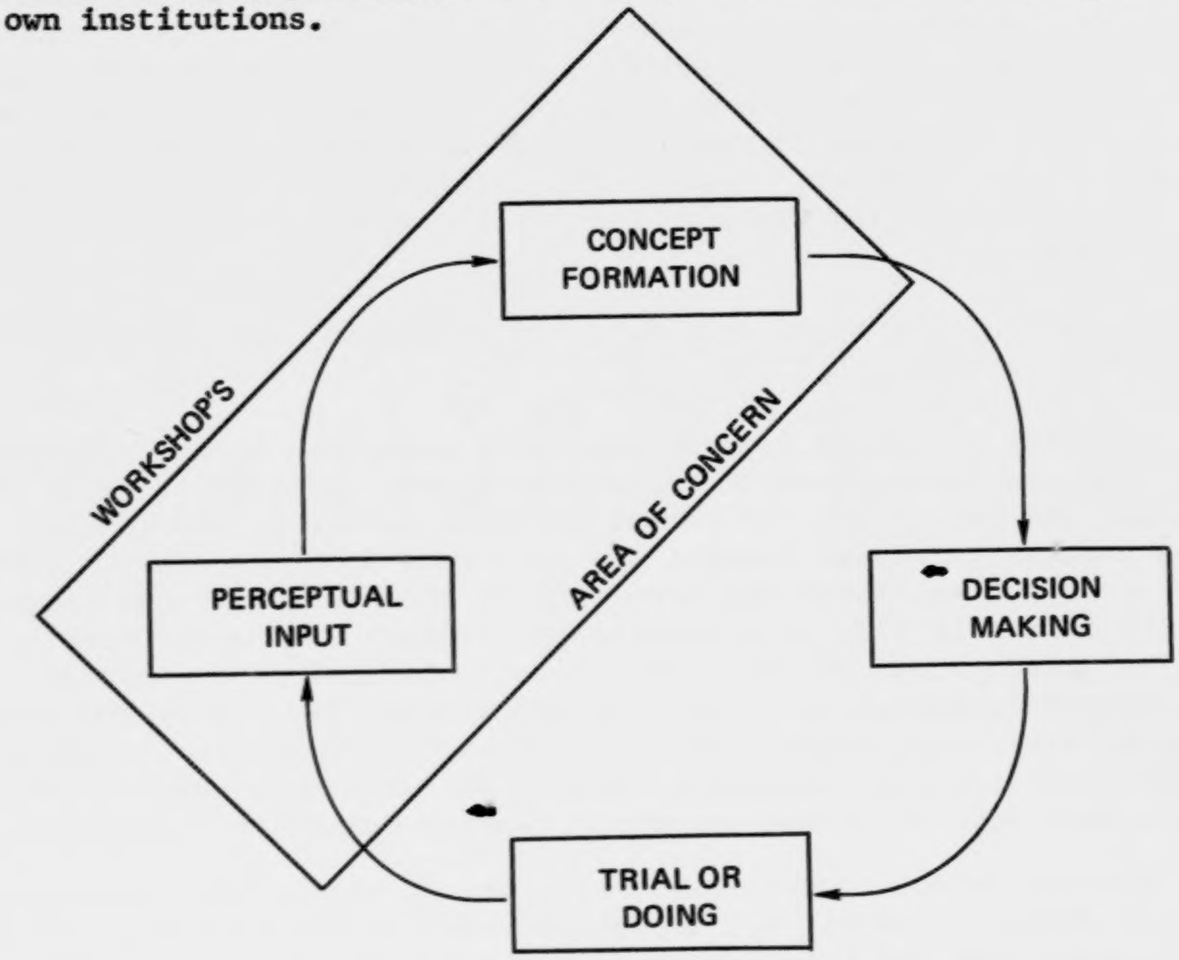

Figure 2. Workshop's Area of Concern

The provision of sufficient and appropriate perceptual input leading to the formation of clear and accurate concepts, as illustrated in Figure 2, thus became the working model for each component of the workshop as well as for the total workshop effort.

SELECTION OF CONTENT

It seemed safe to assume that the participants in both the pilot and regional workshops would bring to the experience widely diversified backgrounds. If the workshop was to be a meaningful experience for all those who attended, they had to be able to relate the substance of the workshop to their own ongoing educational responsibilities. What do all teachers, regardless of level or subject being taught, have in common?

> Step inside a classroom, what do you hear? The chances are better than 60 percent you will hear someone talking if you were in an elementary school or found yourself in an "academic" classroom of a secondary school.
>
> If someone is talking, the chances are that it will be the teachers more than 70 percent of the time. Yes, the teacher talks more than all the students combined. He manages class activities by giving directions, he expresses his ideas by lecturing. He stimulates student participation by asking questions. He clarifies student ideas by applying them to the solution of a problem. He praises and encourages students from time to time. On rare occasions he may clarify or diagnose the feelings and attitudes expressed by students or inferred from their behavior. He may also criticize the behavior of a student or class. All are types of teacher statements that can be heard in a classroom.
>
> Most of the functions associated with teaching are implemented by verbal communication.[6]

If this statement is even partially accurate, we must recognize that all teachers, regardless of subject or level, use talk in their teaching. Through the use of his own verbal behavior patterns, the teacher exercises, to a greater or lesser degree, his influence upon the class. Fortunately, some excellent research has been done in the area of verbal behavior. INTERACTION ANALYSIS, as developed by Flanders and implemented by Amidon, was selected as one of the substantive components of the project. Dr. Edmund J. Amidon, professor of educational psychology and psychology at Temple University, Philadelphia, Pennsylvania, was asked to present the interaction analysis component because he, more than anyone, had used this particular model with undergraduate teacher preparation students.

> "How the person communicates, his tone of voice, his facial expression, his choice of words, the amount and kind of his talk will all determine, in part, how the receiver preceives his communication."[7] "To avoid the narrow view we must start by recognizing that man communicates to his fellow man with his entire body and with all his behaviors."[8] "/These

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[6] Flanders, Ned A. Teacher Influence, Pupil Attitudes and Achievement. Final Report. (Cooperative Research Project No. 397, U.S. Department of Health, Education and Welfare, Office of Education.) Minneapolis: University of Minnesota, 1960. pp. 1-2.

[7] Gibb, Jack R. "Sociopsychological Processes of Group Instruction." Dynamics of Instructional Groups. (Fifty-ninth Yearbook of the National Society for the Study of Education, Part II.) Chicago: University of Chicago Press, 1960. pp. 115-35.

[8] Halpin, Andrew W. "Muted Language." School Review 63: 85-104; Spring 1960.

> behaviors]...are taken by pupils as signs of the psychological state of the teacher."[9] "It makes little difference what the teacher's intentions are and how good the methods are that he uses; if he fails to see what meaning his behavior has for the students, he will not be able to understand their reactions to him."[10] "Teachers seem to vary in their inclination and for their capacity to communicate favorable feelings. It seems urgent that teachers be helped to recognize the significance of the feelings which they express toward children consciously or unconsciously."[11] We recognize that interaction must be understood as a process of influence, but it MUST include the NONVERBAL as well as the verbal."[12]

On the basis of the foregoing, it must be concluded that another characteristic of all teachers, regardless of where or what they teach, is that they send and receive messages without saying or hearing a word. They engage in NONVERBAL COMMUNICATION! To complete the picture of the teacher's behavior, the project included as a second substantive component NONVERBAL COMMUNICATION IN THE CLASSROOM. A foremost authority in this area is Dr. Charles Galloway, associate professor of education at the Ohio State University, Columbus. He was asked to make this presentation:

> The main purpose of a teacher preparation program is to ensure that effectiveness in the learning of pupils is nurtured by the best possible teaching procedures. This means that the aims of the training program must be clearly stated in behavioral terms. These include both the long-range and the immediate aims concerning the competencies in teaching and learning which have been spelled out....The immediate task facing the training program is the development of sufficient competence in a variety of technical skills so that the trainee will begin to be able to exercise good professional judgment in what should be done in any particular teaching situation he confronts. The training program that enables him to develop that power is one that is organized around the major problems a teacher confronts in his teaching.[13]

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[9] Smith, B. Othanel. "A Concept of Teaching." Language and Concepts in Education. (Edited by B. Othanel Smith and Robert H. Ennis.) Chicago: Rand McNally & Co., 1961.

[10] Jenkins, David H. "Prediction in Interpersonal Communication." Journal of Communication 11: 129-35, 166; September 1961.

[11] Davidson, Helen H. and Lang, Gerhard. "Children's Perceptions of Teacher's Feelings Toward Them Related to Self-Perception, School Achievement, and Behavior." Journal of Experimental Education 24: 107-18; December 1960.

[12] Galloway, Charles M. A Model of Teacher Non-Verbal Communication. Prepared for the AACTE Media Project, December 1966. p. 1.

[13] Bush, Robert N. and Allen, Dwight W. Micro-Teaching, Controlled Practice in the Training of Teachers. Prepared for the AACTE Workshop in Teacher Education, 1967. p. 4.

> We must also recognize that there are many factors which influence the way a teacher teaches....Because of these factors we are obligated to provide the teacher the opportunity to acquire as many teaching techniques as possible so that he is free to choose, from a full repertoire of teaching alternatives, those which are compatible with his individual make-up.[14]

Micro-teaching is a system of controlled practice developed by Dr. Dwight W. Allen, now dean of the School of Education at the University of Massachusetts, Amherst. This particular approach focuses upon specific aspects of teaching and provides an opportunity for the trainee to practice under controlled conditions. Competence in one skill is developed before the individual proceeds to another skill. It was accepted that all teachers must have skill in teaching and since micro-teaching was designed as a way of allowing the individual to acquire skill in teaching, Allen was asked to present the third substantive component of the workshop, MICRO-TEACHING.

> We may use practice work as an instrument in making real and vital theoretical instruction; the knowledge of subject matter and principles of education. This is the laboratory point of view...practice work thus...gives the student a better hold upon the educational significance of the subject matter he is acquiring.[15]

> The professional component of a program of teacher education for the last 25 or 30 years has taken for granted that the teacher education student will put together the talk about education and his teaching. The recent research in teaching and work in theory indicates that this is an extremely difficult task and that an assumption of this magnitude is more likely false than true.[16]

> With the advent of the newer media and the adaptation of an old training technique, simulation, it is now possible for teacher educators to provide more life-like learning situations of an instrumental nature which permit theory and practice to be joined.[17]

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[14] Young, David B. The Analysis and Modification of Teaching Behavior Using Interaction Analysis, Micro-Teaching and Video-Tape Feedback. Paper presented at the fifty-second annual convention of the National Association of Secondary School Principals, February 10-14, 1968, Atlantic City, New Jersey. p. 2.

[15] Dewey, John. "The Relation of Theory to Practice in Education." The Relation of Theory to Practice in the Education of Teachers. Third Yearbook of the National Society for the Scientific Study of Education. Chicago: University of Chicago Press, 1904.

[16] A Proposal for the Revision of the Pre-Service Professional Program of Teacher Education. op. cit., p. 63.

[17] Cruickshank, Donald R. "The Longacre School: A Simulated Laboratory for the Study of Teaching." Paper prepared for AACTE Workshop in Teacher Education, 1964. p. 63.

There has long been a recognized need to make teacher education students more sensitive to the needs of pupils and to environmental and social factors affecting the school and its functions. The project recognized in the Teaching Problems Laboratory, developed by Dr. Donald R. Cruickshank, director of research and services, College of Education, at the University of Tennessee, Knoxville, an instrument for developing this needed sensitivity. Cruickshank was therefore asked to present the fourth substantive component of the workshop, SIMULATION.

Thus, considering that all teachers, regardless of level or subject, talk, gesture, need certain skills, and need to be sensitive to the realities of the classroom; the four major content components of the workshop selected were INTERACTION ANALYSIS, NONVERBAL COMMUNICATION IN THE CLASSROOM, MICRO-TEACHING, AND SIMULATION. The next task was to program each of these four components in a way which was consistent with the identified working model illustrated in Figure 2.

Each of these four educational researchers was asked to prepare a working paper which described his model, including the concepts, vocabulary, data, and instrumental acts which were necessary for understanding. Heeding Woodruff's comment, "A concept of something cannot form until its perceptual elements have been fed into the system by means of sense perception,"[18] each paper was used as the basis of a script. From each script a videotape was produced of the educator presenting his particular model. Three of these videotapes were produced by the Division of Radio and Television at the University of Maryland, College Park, under the direction of Dr. Thomas Alyward. The fourth was produced by Dr. Mel Smagorinsky of the State University College at Brockport, New York. These videotapes were to serve as perceptual input for workshop participants as an effort was made to develop a conceptual understanding of each model.

An effort was also made to remain consistent with the working model in the production of each videotape. Working with an instructional materials specialist, each presentor identified those concepts which were critical to the understanding of his model. The instructional materials specialist then provided perceptual materials in the form of video and film clips, slides, overhead transparencies, and actual role-play incidents which were included in the videotapes and inserted at the appropriate times as indicated by the presentor. The intent of these videotape presentations was to provide all workshop participants with a common body of percepts which through discussion could be molded into clear concepts.

In presentation, each videotape was followed by a discussion and closure session led by the presentor or someone identified by him as equally qualified. The purpose of these sessions was for participants to clarify meanings and achieve understanding relative to the model under discussion. Again, where perceptual input was still lacking or needed to be strengthened, the instructional materials specialist provided the presentor with a variety of perceptual materials including film, video playback or additional video recordings, slides, transparencies, audio recordings, role-play situations, and the like. The initial sessions were for perceptual input; the discussion and closure sessions were for conceptual understanding.

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[18] Woodruff, op. cit., p. 4.

Having been exposed to four possible components of a teacher education program, workshop participants next engaged in an analysis session. The analysis experience was made up of two components. The first looked at the content and experiences (curriculum) of the preservice professional teacher education program. Building on the content of the four conceptual models and the manner in which they had been presented in phase one of the workshop, generalizations were drawn relative to the use of a variety of conceptual models in teacher education and to the utility of the design of the workshop for undergraduate teacher preparation. The proposition was set forth, as it had been in the original TEAM Project, that:

1. The teacher's conceptual scheme for organizing his environment provides the basis for selecting an alternative.
2. The teacher's behavior is the means for expressing the chosen alternative.[19]

Going from the specific of the workshop to the general of a teacher preparation program, this part of the analysis suggested that by exposing the undergraduate to a number of such conceptual models he will be better able to formulate for himself his own conceptual scheme of what teaching really is.

As with the earlier presentations, an effort was made in the presentation of the analysis session to remain consistent with the identified working model. Under the direction of an instructional materials specialist, new perceptual materials were prepared for this session. These materials plus the four presentations from part one of the workshop served as the perceptual input necessary to achieve a conceptual understanding of both the workshop design and Woodruff's Cybernetic Cycle of Behavior and Learning. Because this model was so critical to the total workshop effort, Asahel D. Woodruff, professor of educational psychology and former dean of the College of Education at the University of Utah, Salt Lake City, was asked to conduct this session. Woodruff prepared the paper for this session and, when his schedule permitted him to participate in regional workshops, he presented the paper himself.

Part two of the analysis component was concerned with the use of media in instruction, and specifically with the use of media in each component of the workshop. With specific reference to the manner in which the media were utilized by each of the prior presentors, Dr. Vernon Gerlach, associate professor of educational psychology at the Arizona State University, Tempe, established generalizations relative to the properties of the new media to make possible a completely new and different approach to the study of teaching and to the curriculum for professional teacher development. Gerlach noted the potential of the media to extend the learning capacity of not only workshop participants but all learners.

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[19] A Proposal..., op. cit.

While recognizing the capability of the new media in such areas as magnification, amplification, selectivity, isolation, authenticity, reproductivity, and simplification, Gerlach engaged participants in a series of exercises aimed at analyzing the strengths and weaknesses of the workshop experience as it relates to three selected principles of media utilization: (a) SYMBOLIC SUBSTITUTION — that is, providing a referent before the symbol or characteristics of the referent are discussed; (b) SELECTIVE PERCEPTION — guiding the learner's attention to the primary point and eliminating competing stimuli, and (c) DECISION MAKING — getting the learner committed and involved in the learning operation.

Gerlach was also consistent with the identified workshop model by using materials from prior presentations as perceptual input to lead to a conceptual understanding of these three selected principles of media utilization.

The final component of the workshop in teacher education was added following the pilot effort as a result of feedback from pilot participants. The impact of the pilot workshop was such that participants apparently felt that substantive models were being presented as the innovations in teacher education. Certainly such was not the case. The programed presentations were offered as some alternatives among many available for the professional teacher education curriculum. The effort was selective rather than exhaustive. In order to overcome this misunderstanding, a final component was added wherein workshop participants were exposed to three other possible innovative approaches in professional teacher education that could have been programed to fit the workshop design.

The first of these was a series of filmed critical incidents in teaching developed by the Innovation in Teacher Education and Media at Stanford University (Project ITEMS). This series of short staged incidents offers some alternative choices of action for the teacher, then asks the students to arrive at other alternatives in their discussions.

The second alternative was another approach to simulation in the classroom. This was a filmed report on a project directed by Dr. Bert Kersh at the Oregon College of Education. The film used to illustrate this particular approach was produced by Dr. Robert Wagner of the Ohio State University, Columbus.

The third alternative presentation was one of a series of five films developed by the Inter University Film Project at the University of Missouri at Kansas City. The series, entitled Critical Moments in Teaching, consists of open-ended problem orientated films, all based upon some principle of educational psychology. No solution to the problem is offered, but a discussion is stimulated. It was anticipated that the student would use his knowledge of the principles of educational psychology to find a resolution and make his decisions.

Judging from the reaction of participants at regional workshops, the addition of the final component on alternatives accomplished its purpose and reassured teacher educators that the purpose of the workshop was not to offer one innovation as better than another but to disseminate the results of educational research in a more effective manner.

SUMMARY

The AACTE Workshop in Teacher Education was an effort:

1. To show that the gap between the "producer" of educational innovation and the intended "user" of educational research could be bridged.
2. To demonstrate a system which could present the results of educational research in a meaningful, knowledgeable, and understandable way.
3. To demonstrate the integrated and functional use of media in instruction.

In order to accomplish these stated purposes, Woodruff's cybernetic cycle of behavior (Figure 1) was adopted as a tenable model. In this model, behavior is viewed as an energy system and is characterized by--

1. A sensory input process.
2. An internal storage organization and concept formation process.
3. A decision making process.
4. An overt trial or doing process.
5. A feedback process which is a reaction to the trial process and thus becomes additional sensory input, providing the system with its energy.

The role of the project was seen as presenting the results of educational research in a manner which would provide individual participants with a sufficient conceptual understanding of the material presented so that they could make an intelligent decision relative to implementation in their own program of teacher preparation. Therefore, only the first two components of the Woodruff model were considered in the working model for the Workshop in Teacher Education (Figure 2).

In the preparation and presentation of each part of the Workshop in Teacher Education, every effort was made to remain consistent with the working model.

Each of the four presentors, backed up by an Instructional Materials Specialist, was provided with the amount and kind of perceptual input he considered essential for a clear conceptual understanding of his model (Figure 3).

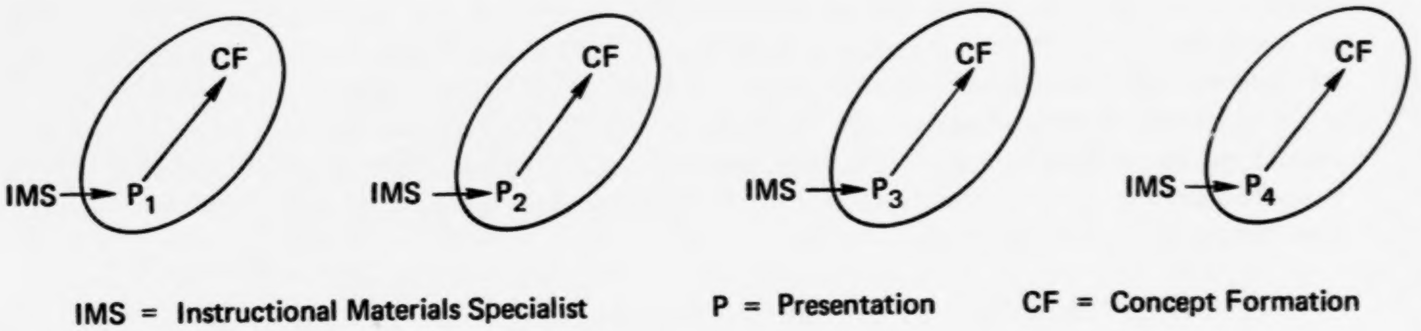

Figure 3. Operational Design for Experience Phase of Workshop in Teacher Education

The same operational design held true for both parts of the Analysis phase of the workshop. For the content and design analysis section, the four presentations (P_1, P_2, P_3, P_4) served as the perceptual input leading to a conceptual understanding of the Woodruff model (Figure 4).

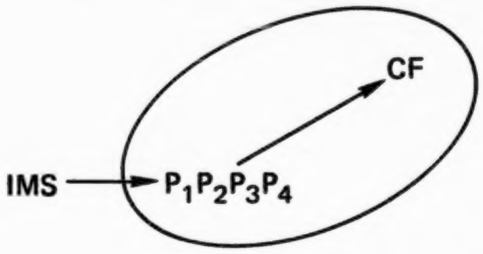

Figure 4. Operational Design for Analysis Phase (Part I) of Workshop in Teacher Education

For the media analysis section, the four presentations plus the first analysis section (A_1) served as the perceptual input necessary to understand the concepts presented relative to media utilization (Figure 5).

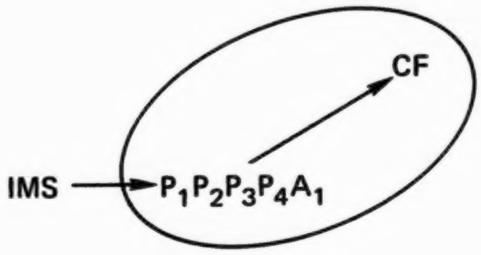

Figure 5. Operational Design for Analysis Phase (Part II) of Workshop in Teacher Education

Thus, every major part of the workshop was designed and remained consistent with the adopted working model.

The workshop format, as it was designed, developed, and presented throughout the country, is shown in Figure 6.

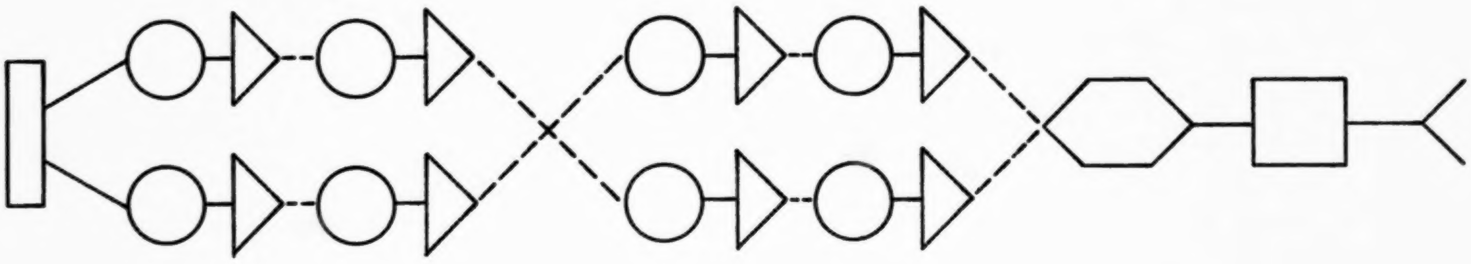

Figure 6. Format for Workshop in Teacher Education

Following a large group orientation, participants separated into two groups and viewed a videotape presentation on a given model. This was followed by a discussion and closure session on the model presented. During the afternoon the process was repeated using a second model. During the second day of the workshop, the small groups switched. By the end of the second day, all participants had experienced a videotape presentation of each of the four models and engaged in a discussion and closure session concerning each model aimed at clarifying meanings and achieving understanding. The last half day was presented in a large group session and was devoted to an analysis of content and design, an analysis of media utilization, and the presentation of other alternatives. Each component of the workshop format will be presented in Part II of this report.

Part II

THE EFFORT

THE PILOT

As was indicated in Part I of this report, the effort took the form of a Workshop in Teacher Education. The first workshop, truly a pilot effort, was held on the campus of the University of Maryland, January 28-30, 1967. This first workshop involved as participants two representatives from 18 selected institutions across the country. The selected content was presented in separate components: (a) Interaction Analysis, (b) Micro-Teaching, (c) Nonverbal Communications in the Classroom, (d) Structural Analysis, and (e) Media Analysis.

The first three of these components made up the substantive content of the pilot workshop. The fourth, the structural analysis component, attempted to relate the presentation of the substantive material to what we know of learning; and the fifth, the media analysis component, addressed itself to the use of media throughout the entire effort. The general rationale for the selection of the first three components was as follows:

We recognize that the teacher's primary behavior in the classroom is verbal. Through the use of his own verbal behavior the teacher tends to influence what happens in the classroom. Therefore, a consideration of the teacher's verbal behavior, i.e., interaction analysis, seemed appropriate. The component of nonverbal communication in the classroom was included so that participants could consider the teacher's total behavior, which was considered to be a combination of verbal and nonverbal elements. Finally, it was thought that the teacher's verbal and nonverbal behavior patterns were displayed as he exercised various competencies or skills in his teaching. This led to the addition of the micro-teaching component as a means of looking at the specific skills needed by the practicing teacher. The design seemed to create an appropriate continuum — with verbal behavior at one end, nonverbal behavior at the other, and skill development in the middle.

Participants in the pilot workshop began by taking a pre-test and were then exposed to the three substantive components, followed by the structural analysis and the media analysis. The group was then post-tested, which concluded the workshop. Reactions to the total experience were sought from all participants through a reaction sheet to be returned by mail.

FEEDBACK

Of the 36 pilot participants, 33 responded to the request for reactions. The feedback indicated the following.

1. While the pre- and post-test provided an interesting experience, they added little to the total experience.
2. The immediate immersion in the program bothered many participants. It was felt that a general orientation to the experience should be provided which would include the objectives of the workshop.
3. It was the general feeling that the substantive presentations were out of balance; that is, that Interaction Analysis and Nonverbal Communication offered two curricular innovations while Micro-Teaching offered only one operational technique or way of implementing certain facets of the curriculum. It was suggested that a second operational technique be added.
4. It was strongly suggested that both the Structural Analysis and Media Analysis components be refined and tightened. This suggestion applied both to the concepts presented and to the techniques of presentation.
5. Some concern was expressed that the workshop seemed to be "selling" the three substantive components. The suggestion was put forth that greater effort be made to indicate that the selected content represented only a few alternative innovations available to teacher education.

This feedback was given careful consideration and the next several months were spent in reviewing the videotapes of the pilot workshop and in refining the overall workshop format.

SCHEDULE

At the Annual Meeting of The American Association of Colleges for Teacher Education (AACTE), in February 1967, a report on the pilot workshop was given at the open meeting of the Subcommittee on Teacher Education and Media. In addition to the staff presentations, general reactions were presented by two participants in the pilot workshop, Dr. L. Morris McClure, associate dean for undergraduate teacher preparation, College of Education, University of Maryland, College Park; and Dr. Allen Myers, dean, College of Education, Eastern Michigan University, Ypsilanti. Dr. George W. Denemark, dean, College of Education, University of Kentucky, Lexington, and a member of the AACTE Subcommittee on Teacher Education and Media, also offered a reaction as official observer.

In addition to this kind of national exposure, a brochure was mailed to all member institutions of AACTE asking about their interest in hosting a regional workshop. Favorable responses and requests for additional information were received from 151 institutions. From this number the following institutions were selected for regional workshops. Selection was based primarily on early response and willingness to serve a broad geographic area.

AACTE REGIONAL WORKSHOPS IN TEACHER EDUCATION

Host Institution	Date	Coordinator
1. The University of Rochester and Eastman Kodak Company Rochester, New York	July 5-7, '67	Dr. Dean Corrigan Associate Dean

2.	The University of Missouri Columbia, Missouri	July 13-14, '67	Dr. Bob G. Woods, Dean
3.	The University of Denver Denver, Colorado	Sept. 12-14, '67	Dr. Nathaniel H. Evers Dir., School of Education
4.	Marymount College Salina, Kansas	Sept. 21-23, '67	Sister Magdalita, Supv. Secondary Education
5.	Marygrove College Detroit, Michigan	Oct. 4-6, '67	Sister Gilmary, Assoc. Professor of Education
6.	Stout State University Menomonie, Wisconsin	Oct. 9-11, '67	Dr. D. P. Barnard, Chmn. Audio-Visual Department
7.	Lehigh University and State Dept. of Public Instruction Bethlehem, Pennsylvania	Oct. 11-13, '67	Dr. Clifford A. Burket Assoc. Professor of Education
8.	University of Tennessee Knoxville, Tennessee	Oct. 19-21, '67	Dr. E. C. Merrill, Dean College of Education
9.	Southeastern Education Lab. and Eastman Kodak Company Atlanta, Georgia	Oct. 25-27, '67	Dr. Alexander J. Kloster Associate Dir., SEEL
10.	University of Chicago Chicago, Illinois	Nov. 1-3, '67	Dr. Kevin Ryan, Director MAT Program
11.	Southern Illinois Univ. Carbondale, Illinois	Nov. 6-8, '67	Dr. Elmer Clark, Dean College of Education
12.	Ohio State University Columbus, Ohio	Nov. 15-17, '67	Dr. Fredrick R. Cyphert Associate Dean School of Education
13.	University of Puerto Rico Rio Piedras, P. R.	Nov. 28-30, '67	Dr. A. A. de Vergne Associate Dean College of Education
14.	Southern Oregon College Ashland, Oregon	Dec. 6-8, '67	Dr. E. C. McGill Dean of Faculty

Because of scheduling difficulties, additional workshops were scheduled during the period of March 1, 1968, to May 31, 1968.

15.	Texas Technological Univ. Lubbock, Texas	Mar. 6-8, '68	Dr. L. Ann Buntin, Head, Department of Home Economics Education
16.	Farmington State College Farmington, Maine	Mar. 27-29, '68	Dr. Eniar Olsen Dean of Instruction

17.	University of Pittsburgh Pittsburgh, Pennsylvania	Apr. 24-26, '68	Dr. Robert A. Cox, Chmn. Educational Communication
18.	University of Maryland College Park, Maryland	May 14-16, '68	Dr. David Young Assistant Professor of Education

This effort has reached almost 1,000 teacher educators, representing more than 425 institutions of higher education and public school systems from 40 of the 50 states and several foreign countries.

AN OVERVIEW

The design of the regional workshops is presented schismatically in Figure 6 on page 14.

1 General orientation provided by the project director or member of the project staff.

2A Interaction Analysis, presented by Dr. Edmund J. Amidon of Temple University via videotape recording.

2B Micro-Teaching, presented by Dr. Dwight W. Allen of the University of Massachusetts via videotape recording.

3A 3B A discussion and closure session to clarify meanings and achieve understanding. The host institution could select its own resource person for this purpose or the project staff would secure the services of a qualified resource person for the institution.

4A Nonverbal Communication in the Classroom, presented by Dr. Charles M. Galloway of the Ohio State University via videotape recording.

4B Simulation, presented by Dr. Donald Cruickshank of the University of Tennessee via videotape recording.

5A 5B A discussion and closure session to clarify meanings and achieve understanding. The host institution could select its own resource person for this purpose or the project staff would secure the services of a qualified resource person for the institution.

Following Session 1 the total group divided into two smaller groups for the purpose of facilitating discussion and interaction. During the second day of the workshop, the groups switched and the presentations and discussions were repeated. Thus, by the end of the second day, all participants had been exposed to all four presentations and had engaged in a discussion relative to each.

6 Once again in a large group session, the Structural Analysis phase of the workshop was presented by either Dr. Asahel D. Woodruff of the University of Utah or the project director. This session related the experience of the previous two days to what we know of

how learning takes place and offered a rationale for the use of new media set within the framework of learning theory.

7 The Media Analysis component looked more specifically at the workshop experience in relation to three principles of media utilization — symbolic substitution, selective perception, and decision making. Also offered was a basic four-step model for media selection and utilization. This component was presented by a team made up of the project staff (live) and Dr. Vernon Gerlach of Arizona State University (videotape).

8 The final session of the workshop might be classified as an exposure to other possible alternatives which could well be used within a teacher preparation program. No attempt was made to discuss these alternatives. The point made was that these alternatives could have been selected and programed into the workshop format just as well as the four chosen. The alternatives presented were:

1. Alternatives in Teaching — a series of classroom incidents produced by the ITEMS Project at Stanford University.
2. Oregon Simulation Program (using Oregon Simulation Clip from Ohio State University film).
3. Interuniversity Film Project — stimulus films for teacher education. The University of Missouri at Kansas City (using the film What Do You Know About Benny).

THE WORKSHOP

So that the reader may more clearly understand the intent of the total effort and grasp the significance of the design, an effort is made to reproduce each component here, except for 3A, 3B, 5A, 5B, and 8 — the discussion and closure sessions and the alternatives session. In place of the videotape, a paper by each of the presentors is included. In great measure, the videotape contains the same material and was based upon the paper. Wherever possible the papers are cued for the use of the visual materials that were used. It is hoped that these materials can be made available to those institutions who might wish to conduct their own workshop in teacher education. Papers are cued according to the following:

S — Slide
OV — Overhead
F — Film
VTR — Videotape

1

ORIENTATION

The primary concern of The American Association of Colleges for Teacher Education is the improvement of teacher education throughout the country. Our 806 member institutions prepare over 90 percent of the new teaching force of this country each year. We have a responsibility, therefore, to innovate, to suggest, to inform. With the object of improving the education of teachers, many research studies and experimental efforts have been and are being conducted throughout the nation. Yet, in many cases these efforts are carried out in relative isolation from the mainstream of teacher education, and their results go largely unknown and unused. One could argue, of course, that the researcher has a responsibility to the field to make known the results of his experimentation, but that is not our present concern. We feel that the AACTE does have that responsibility to its membership, and that it is a responsibility which goes beyond simply making important information available. It is also necessary to make sure it is understood: to inform with understanding.

(S-1) The purpose of this workshop is to offer teacher educators an understanding of new teaching strategies and (S-2) media systems in the field of teacher education. (S-3) Your job is to evaluate it, to accept or reject it in terms of its usefulness for your applications, or its compatibility with your own philosophy of teacher preparation. (S-4)

Three years ago the AACTE, in cooperation with the Associated Organizations for Teacher Education, began the Teacher Education and Media Project. Among the objectives of this project were:

(S-5) 1. Suggestions for restructuring the organization of preservice teacher education to take full advantage of the new media.

(S-6) 2. Plans for developing technological instructional units, and for organizing them into multimedia instructional systems appropriate for teacher education.

(S-7) The TEAM Project pulled together the latest in teacher education research and presented a proposal for revision of the preservice teacher education curriculum. (S-8)

TEAM assumed that the prospective teacher, because of his own experiences as a student, had already formed certain ideas about teaching. It assumed, however, that in most instances such ideas were likely to be incomplete, (S-9) reflecting the student's one-sided experience with the teaching process, that is, from the learner point of view only. (S-10) Thus the purpose of the professional education curriculum is to reorganize and extend the ideas about teaching that the prospective teacher already possesses, and in so doing to transform a student into a teacher.

(S-11) Based on these assumptions, the TEAM Project presented a proposal for revision of the preservice professional component of the teacher education curriculum. In keeping with the project's first objective, the proposal called for the establishment of a five-course undergraduate program which included:

(S-12) Course I	Analytical Study of Teaching
(S-13) Course II	Structures and Uses of Knowledge
(S-14) Course III	Concepts of Human Development and Learning
(S-15) Course IV	Designs for Teaching-Learning
(S-16) Course V	Demonstration and Evaluation of Teaching Competencies

(S-17) Broadly speaking, then, the original TEAM Project suggested a curricular revision built around the premise that if the teacher preparation student were presented a series of conceptual models, offered within the framework of these five courses, he would thus be provided with the background and weaponry needed to construct his own conceptual model of teaching.

(S-18) The TEAM Project found that in thinking about this curricular revision, it was helpful to use the Woodruff "Cognitive Cycle in Behavior and Learning" as a way of looking at the process of concept formation and model-building. As stated verbally, "Human behavior and learning operate in a cycle beginning with referential-perception input and followed by assimilation, accommodation, tryout, and feedback to referential-perception input."[20]

(S-19) Graphically represented, this cycle has four main components: (S-20) Perceptual Input, (S-21) Concept Formation, (S-22) Decision Making, and (S-23) Trial or Doing. According to Woodruff, concepts are formed on the basis of the sensory or perceptual input experienced by the learner. (S-24) If the learner is exposed to a great wealth and variety of sensory input, he can develop the variety and wealth of concepts which are needed for effective and creative behavior. It is here that media has a vitally important part to play in providing the kinds of multisensory input needed in the learning process. These, then, were our antecedents — the forces and concerns which led us to this workshop.

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[20] Woodruff, Asahel D. "Cognitive Models of Learning and Instruction." Contemporary Theories of Instruction. (Edited by L. Siegel.) San Francisco: Chandler Publishing Co., 1967. Chapter 1.

(S-25) The present AACTE Media Project is an effort to meet the second objective of the original TEAM Project: To develop plans for multimedia instructional systems appropriate for teacher education. (S-26)

In structuring this workshop as a meaningful learning experience, we, too, have found it useful to refer to the Woodruff learning cycle, both for organizing the content and for programing learning situations.

(S-27) Teaching is a complex and dynamic process. Decisions are required of teachers, whether these decisions are intuitive and unrecognized or conscious and examined. But intuitive or conscious, such decisions are a result of the individual's own conceptions about teaching, (S-28) and these conceptions can be enhanced, broadened, and made sharper through skillful use of the new media.

(S-29) The experience you are about to begin offers some alternative models, but any model might serve. These are used simply to demonstrate the instrument or vehicle which has been designed and which is consistent throughout with the cognitive cycle set forth by Woodruff.

(S-30) Working with an instructional materials specialist, each of the presentors you will see was given a variety of media to provide the sensory input necessary to establish conceptual understanding which he considered essential.

(S-31) Next, using these presentations as perceptual input, Woodruff will in the same way develop the concepts necessary to understand the cognitive cycle in behavior and learning. (S-32) Gerlach in turn will use both the presentations and Woodruff's Structural Analysis as the perceptual input necessary to understand what is meant by the integrated and functional use of media in instruction. (S-33) Thus, our attention to the first two components of the learning cycle is consistent throughout the Experience Phase, the Integrative Phase, and the Analysis Phase of the workshop. (S-34)

This workshop has two tracks. (S-35) One is a curricular track which concerns itself with conceptual models which might be included within the first course of TEAM'S proposed five-course teacher education curriculum, the Analytical Study of Teaching. The second is an operational track — examining ways that might be used to implement certain components of the curriculum. The curricular track begins with an examination of Interaction Analysis, as developed by Flanders and implemented by Amidon. This component looks at the teacher's use of his own verbal behavior as an instrument of influence in the classroom. The second curricular component is Nonverbal

Behavior in the Classroom. Here we are introduced to Galloway's categorization of the nonverbal actions of the teacher as both sender and receiver. Please understand that we could have selected a number of other curricular components, but our intent is simply to offer two possible alternatives for your consideration. (S-36)

Similarly, the second, or operational, track of the workshop could have been devoted to any number of other techniques made possible by the new media. We have selected Micro-Teaching as developed by Allen and a Simulation program developed by Cruickshank. Our approach, in other words, is selective rather than exhaustive.

We anticipate that after completing this workshop, we will have fulfilled our stated objectives, which are to:

(S-37) 1. Demonstrate some selected elements of an undergraduate teacher education program.
(S-38) 2. Demonstrate the integrated and functional use of media in instruction.
(S-39) 3. Demonstrate that media are essential to the effective activation of any complete idea of learning.
(S-40) 4. Make the relationship between media and learning visible and rational.

During this workshop, we hope that you will recognize several things:

(S-41) First, that we have selected a model of behavior as our conceptual vehicle. Although this model has four components, we are specifically concerning ourselves with only the first two — Perceptual Input and Concept Formation. The other two components, Decision Making and Trial, are yours on your own campuses.

(S-42) Second, that the workshop format is based on and consistent with the selected model. We hope you will be conscious of the flow scheme and recognize that it is the integrated application of the media that makes it work.

(S-43) Finally, that the selected content (Interaction Analysis, Nonverbal Behavior in the Classroom, Micro-Teaching, and Simulation) are only alternatives and that the content is actually incidental to the Media workshop pattern (S-44).

Our purpose is to inform with understanding. We have some very specific objectives in mind for you. But after you have completed the entire experience, we want you to tell us two things: did you really learn something about the selected approaches to teacher education, and do you feel that this kind of workshop is a viable way of bridging the gap between the researcher and experimenter and the community of teacher education?

The total group of participants was then divided into two equal groups, A and B. The following papers are offered in lieu of the videotape:

1. Interaction Analysis, by Dr. Edmund Amidon
2. Nonverbal Behavior, by Dr. Charles Galloway
3. Micro-Teaching, by Dr. Dwight Allen
4. Simulation, by Dr. Donald Cruickshank

Copies of the videotapes are available by writing Mr. John Anderson, The Ampex Duplicating Center, Ampex Corporation, Consumer Education and Product Division, 2201 Lunt Avenue, Elk Grove Village, Illinois 60007. They are available on one-inch tape for playback on Ampex 1" helical scan recorders on the following price schedule:

1. Sixty dollars ($60) plus shipping cost: includes tape and duplicating of program.
2. Twenty-five dollars ($25) per program duplicated plus shipping cost, if you prefer to provide Ampex with your blank videotape.

Each of the sessions had specific behavioral objectives. A copy of these objectives was provided each participant at the beginning of each session.

(2A)

INTERACTION ANALYSIS
(Time: 52 Minutes)

Adapted From
"The Role of the Teacher in the Classroom"
by
Edmund J. Amidon
Ned A. Flanders

Prepared for the AACTE Workshop in Teacher Education — 1967

INSTRUCTIONAL OBJECTIVES

At the end of these sessions each participant should be able to:

1. List 10 categories of classroom interaction and specify the nature of classroom teacher-pupil interaction.
2. Describe teaching patterns which exist in teacher-pupil interaction in the classroom.
3. Given a typical classroom situation, identify areas of the interaction matrix which correspond to specific classroom teaching patterns.
4. Describe procedures for diagnosing teacher behavior using interaction analysis techniques.

The social forces at work in the classroom are so complex that it looks on the surface as if any attempt to analyze them would be extremely difficult. The teacher's interaction with children, which is a portion of the total social process, seems almost as difficult to identify. Nevertheless, teacher-pupil contacts have been classified into specifically defined behavioral acts by various researchers who have studied teacher behavior.

The Flanders system, which is the system of interaction analysis outlined here, is concerned with verbal behavior only, primarily because it can be observed with higher reliability than can nonverbal behavior. The assumption is made that the verbal behavior of an individual is an adequate sample of his total behavior.

DESCRIPTION OF CATEGORIES

In the Flanders system of interaction analysis observation, all teacher statements are classified first as either indirect or direct. This classification gives central attention to the amount of freedom the teacher grants to the student. In a given situation, therefore, a teacher has a choice. He can be direct, that is, minimizing the freedom of the student to respond, or he can be indirect, maximizing the freedom of the student to respond. His choice, conscious or unconscious, depends upon many factors, among which are his perceptions of the situation and the goals of the particular learning situation.

In order to make total behavior or total interaction in the classroom meaningful, the Flanders system also provides for the categorizing of student talk. A third major section, that of silence or confusion, is included in order to account for the time spent in behavior other than that which can be classified as either teacher or student talk. All statements occur in (a) teacher talk, (b) student talk, and (c) silence or confusion, a separate category, used to handle anything which is not teacher or student talk.

The larger sections of teacher and student verbal behavior are subdivided in order to make the total pattern of teacher-pupil interaction more meaningful. The two subdivisions for teacher verbal behavior, indirect and direct teacher talk, are further divided into smaller categories. Indirect influence consists of four observation categories: (a) accepting feeling, (b) praising or encouraging, (c) accepting ideas, and (d) asking questions. Direct influence is divided into three categories: (e) lecturing, (f) giving directions, and (g) criticizing or justifying authority. Student talk is divided into only two categories: (h) responding to teacher, and (i) initiating talk. All categories are mutually exclusive, yet totally inclusive of all verbal interaction occuring in the classroom.

SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS

TEACHER TALK	INDIRECT INFLUENCE	1. Accepts Feeling: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
		2. Praises or Encourages: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying "uh huh?" or "go on" are included.
		3. Accepts or Uses Ideas of Student: clarifying, building, or developing ideas or suggestions by a student. As teacher brings more of his own ideas into play, shift to category five.
		4. Asks Questions: asking a question about content or procedure with the intent that a student answer.
TEACHER TALK	DIRECT INFLUENCE	5. Lectures: giving facts or opinions about content or procedure; expressing his own idea; asking rhetorical questions.
		6. Gives Directions: directions, commands, or orders with which a student is expected to comply.
		7. Criticizes or Justifies Authority: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing, extreme self-reference.

STUDENT TALK		8. Student Talk-Response: talk by students in response to teacher. Teacher initiates the contact or solicits student statement.
		9. Student Talk-Initiation: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
		10. Silence or Confusion: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

PROCEDURE FOR CATEGORIZING TEACHER-PUPIL INTERACTION

The Flanders system of interaction analysis was originally used as a research tool and continues to serve this function. As such, it is employed by a trained observer in order to collect reliable data regarding classroom behavior as a part of a research project.

As it is described here, the system is meant to be used as an in-service training device for teachers. It may be employed by a teacher either as he observes someone else teach or as he categorizes a tape recording of his own classroom behavior. In either case the method is the same.

Every three seconds the observer writes down the category number of the interaction he has just observed. He records these numbers in sequence in a column. He will write approximately 20 numbers per minute; thus, at the end of a period of time, he will have several long columns of numbers. The observer preserves this sequence of numbers which he has recorded. It is important to keep the tempo as steady as possible, but it is even more crucial to be accurate. He may also wish to write down marginal notes from time to time, which can be used to explain what has been happening in the classroom.

No matter whether he is using a live classroom or a tape recording for his observations, it is best for the observer to spend five to ten minutes getting oriented to the situation before he actually begins to categorize. He then has a feeling for the total atmosphere in which the teacher and pupils are working. After he has begun to get the feeling of the classroom interaction, he begins to record the interaction.

The observer stops classifying whenever the classroom activity has changed so that observing is inappropriate as, for instance, when there are various groups working around the classroom, or when children are working on workbooks or doing silent reading. He will usually draw a line under the recorded numbers, make a note of the new activity, and resume categorizing when the total class discussion continues. At all times the observer notes the kind of class activity he is observing. The reading group in the elementary school is obviously different from an informal discussion period, a review of subject matter, a period of supervised seat work, teacher-directed discussion, introduction of new material, or evaluation of a unit which has been completed. Such diverse activities may be expected to show different types of teacher-pupil interaction even when guided by the same teacher. A shift to new activity should also be noted.

GROUND RULES

Because of the complexity of the problems involved in categorization, several ground rules have been established. These rules of observation aid in developing consistency in trying to categorize teacher behavior. They have been useful in working in classrooms with all subject areas and at all grade levels.

Rule 1: When not certain in which of two or more categories a statement belongs, choose the category that is numerically farthest from Category 5. This is true except when one of the two categories in doubt is Category 10, which is never chosen if there is an alternate category under consideration. Because those categories farthest from the center (5) of the category system are less frequently occurring, the observer maximizes information by choosing the less frequently occurring category (except 10) when there is a choice. For example, if the observer is not sure whether it is a 2 or a 3, he chooses 2. If in doubt between a 5 and a 7, he chooses a 7, etc.

Rule 2: If the primary tone of the teacher's behavior has been consistently direct or consistently indirect, do not shift into the opposite classification unless a clear indication of shift is given by the teacher. The trained observer is in the best position to judge whether or not the teacher is restricting or expanding the freedom of action of class members. If the observer feels that the teacher's pattern of behavior is generally one of expanding the freedom of students to act, a slightly more direct statement in a very indirect pattern may tend to look, in contrast, like a more direct statement than it actually is. On the other hand, he must remain alert to shift as the teacher shifts momentarily to one of the more direct categories. Conversely, if the observer feels that the teacher has been consistently restrictive in his behavior, he is particularly careful in his use of the indirect categories.

In observing this rule, the observer is reacting to the general tone of the teacher's influence, either direct or indirect, and does not use the opposing categories unless it is clear that the teacher has shifted from this more general pattern. He must, of course, be certain that the teacher has established a direct or indirect pattern before he categorizes consistently in either of the two areas. Clearly, he must also be ready to change when the teacher obviously moves all the way up the system; that is, to 1 or 2 from 6 or 7, or when the teacher moves all the way down to a 6 or 7 from a 2 or a 3. This rule is often called the rule of the unbiased biased or indirect influence, and although he is ready to move to the opposite set of categories, he must feel that the teacher has definitely moved to the opposite type of influence before he is willing to grant a change in interaction pattern.

Rule 3: The observer must not be overly concerned with his own biases or with the teacher's intent. Rather, he must ask himself the question, What does this behavior mean to the pupils as far as restriction or expansion of their freedom is concerned? If, when the teacher attempts to be clever, pupils see his statements as criticism of a pupil, the observer uses Category 7, rather than Category 2. If the teacher, in being sarcastic, says how good the children are, again Category 7 is used. If a statement intended as a question has the effect of restricting students' freedom so that it becomes a direction, then it must be classified as a direction. The effect of a statement on the pupils, then, not the teacher's intent, is the crucial criterion for categorizing a statement.

This rule has particular value when applied to the problem of helping teachers to gain insight into their own behavior. In trying to categorize their own tapes, teachers comment, "But I meant...," or "I was really trying to get the pupils to talk more," or "I think that I wanted them to answer that question," or "I was trying to praise them," or "I meant to use that child's idea." All these protests indicate that the teacher is thinking about his intent rather than the effect of his behavior on the class members.

The meaning and value of this category system for an individual teacher come from the attention it gives to the effect of teacher behavior on the freedom of the class. Use of this criterion requires a great deal of training, particularly when a teacher is categorizing a tape of his own teaching. He must learn to be nondefensive about categorizing the behavior, recognizing that there is absolutely no evaluation or good-bad orientation implied in the category system. The question is simply, What category best describes this particular bit of interaction?

Rule 4: If more than one category occurs during the three-second interval, then all categories used in that interval are recorded; therefore, record each change in category. If no change occurs within three seconds, repeat that category number. This rule is concerned with the situation in which statements from two categories occur during a three-second period. Generally an observer writes down a category number every three seconds. The pace of recording is generally maintained so that only one category number is written during this period.

However, if there is a change in categories during this interval, the observer records the change. Within the three-second interval, for example, the teacher may ask a question, the child answer, and the teacher praise the child. The observer attempts to record all three of the categories. The fourth rule, therefore, is that a category number is recorded every three seconds unless the teacher changes categories within the three-second interval. If he changes categories, or if more than one category occurs during the three-second interval, then all categories used in the time period are recorded.

Rule 5: If a silence is long enough for a break in the interaction to be discernible, and if it occurs at a three-second recording time, it is recorded as a 10. (This rule is listed because observers tend to ignore short periods of silence.) The 10 is also used when two people are talking at once and when there is slight confusion in the classroom so that the observer cannot identify a single speaker. Breaks in the interaction in the form of silence or confusion are classified in Category 10.

The importance of preserving the sequence when categorizing teacher statements has been emphasized. In this way the sequence of events in a classroom can be preserved for analysis. It is not enough to say that a teacher uses lecture 50 percent of the time or that he criticizes 5 percent of the time. When does he use this lecture or this criticism? With what other kinds of statements are they combined?

RECORDING DATA IN A MATRIX

There is a method of recording the sequence of events in the classroom in such a way that certain facts become readily apparent. This method consists of entering the sequence of numbers into a 10-row by 10-column table, which is called a matrix (see Table I). The generalized sequence of the teacher-pupil interaction can be examined readily in this matrix. The following example shows how an observer would classify what happens in a classroom and how the observations are recorded in the matrix.

The example is a fifth-grade teacher who is beginning a social studies lesson. The observer has been sitting in the classroom for several minutes and has begun to get some idea of the general climate before he begins to record. The teacher says to the class, "Boys and girls, please open your social studies books to page five." (Observer classified this as a 6, followed by a 10 because of the period of silence and confusion as the children try to find the page.) The teacher says, "Jimmy, we are all waiting for you. Will you please turn your book to page five?" (Observer records a 7 and a 6.) "I know now," continues the teacher, "that some of us had a little difficulty with, and were a little disturbed by, the study of this chapter yesterday; I think that today we are going to find it more exciting and interesting." (Observer records two 1's; reacting to feeling.) "Now, has anyone had a chance to think about what we discussed yesterday?" (Observer records a 4 for a question.) A student answers, "I thought about it, and it seems to me that the reason we are in so much trouble in Southeast Asia is that we haven't really had a chance to learn to understand the ways of the people who live there." (Observer records three 8's.)

The teacher responds by saying, "Good; I am glad that you suggested that, John. Now let me see if I understand your idea completely. You have suggested that if we had known the people better in Southeast Asia, we might not be in the trouble we are in today." (This is classified as a 2, followed by two 3's.)

The observer now has classified the following sequence of numbers in the fashion shown on the following page. Tabulations are now made in the matrix to represent pairs of numbers. Notice in the listing on the following page that the numbers have been marked off in pairs. The first pair is 10-6; the second pair is 6-10, etc. The particular cell in which tabulation of the pair of numbers is made is determined by using the first number in the pair to indicate the row and the second number in the pair for the column. Thus, 10-6 would be shown by a tally in the cell formed by Row 10 and Column 6. The second pair, 6-10, would be shown in the cell formed by Row 6 and Column 10. The third pair, 10-7, is entered into the cell, Row 10 and Column 7. Notice that each pair of numbers overlaps with the previous pair, and each number, except the first and the last, is used twice. It is for this reason that a 10 is entered as the first number and the last number in the record. This number is chosen as it is convenient to assume that each record began and ended with silence. This procedure also permits the total of each column to equal the total of the corresponding row.

10
) 1st pair
6
2nd pair (
10
) 3rd pair
7
4th pair (
6
1
1
4
8
8
8
2
3
3
10

It is convenient to check the tabulations in the matrix for accuracy by noting that there should be one less tally in the matrix than there were numbers entered in the original observation record (N-1). In this case we started with 15 numbers and the total number of tallies in the matrix is 14. This tabulation is shown in Table I on the following page.

Ordinarily a separate matrix is made for each specific lesson or major activity. If the observer is categorizing 40 minutes of arithmetic and 20 minutes of social studies, he makes one matrix for the arithmetic and another for the social studies lesson. If a secondary teacher has a 30-minute discussion period followed by a 20-minute period of more structured lecture in another area, then the observer usually makes two separate matrices. Matrices are more meaningful when they represent a single type of activity or work.

Second

Columns

First Rows

	1	2	3	4	5	6	7	8	9	10	
1	1			1							
2			1								
3			1							1	
4								1			
5											
6	1									1	
7						1					
8		1						11			
9											
10						1	1				
Total	2	1	2	1	0	2	1	3	0	2	14

Table 1. Sample Interaction Matrix

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②B

MICRO-TEACHING
(Time: 52 Minutes)

Controlled Practice in the Training of Teachers
Adapted from a paper by
Robert N. Bush
Dwight W. Allen

Prepared for the AACTE Workshop in Teacher Education — 1967

INSTRUCTIONAL OBJECTIVES

At the end of these sessions each participant should be able to:

1. Describe the sequence for micro-teaching.
2. Describe what is meant by technical skills in teaching and list examples of six of those skills which are used in micro-teaching.
3. Identify learning theories which support the concept of micro-teaching.
4. Identify the most effective supervisory behavior using TV in micro-teaching.

DEFINITION

Micro-teaching is a scaled-down sample of teaching. This procedure, developed at Stanford University during the past few years as a part of its experimental teacher education program, is used with trainees, immediately upon their entrance into the program in the summer. They are required to teach brief lessons (5 to 20 minutes) in their subjects, first to one and then to a small group of pupils (up to five).

PURPOSE

The purpose of micro-teaching is to provide an opportunity for those who are preparing to teach to obtain a liberal amount of practice immediately upon their entrance into training, under optimum conditions for the trainees and without endangering the learning of pupils. While micro-teaching has other possible purposes and uses, its principal aim is to provide a preinternship training, to get candidates ready to enter responsible internship teaching in the schools in the fall.

EXAMPLES OF SOME SKILLS

Micro-teaching aims to break down the complex act of teaching into simpler components so that the learning task will be more manageable for the beginner.

When the trainee engages in a micro-teaching lesson in his subject, he focuses upon a specific aspect of teaching until he has developed a satisfactory minimum of skill before he proceeds to another skill. If he does not master the skill in the first lesson, he views his performance on video-tape, receives a critique of it, engages in training, and tries again until he is successful.

The following nine specific technical skills which appear to be primary components for training are currently under discussion. These are not, it will be noted, mutually exclusive categories. Skill in one may depend upon, or be used to help achieve, skill in another. They each represent a rather specific phase of teaching behavior, the importance of which seems to be commonly agreed upon by experienced teachers.

1. Establishing Set

The term set refers to the establishment of cognitive rapport between pupils and teacher to obtain immediate involvement in the lesson. Experience indicates a direct relationship between effectiveness in establishing set and effectiveness in the total lesson. If the teacher succeeds in creating a positive set, the likelihood of pupil involvement in the lesson will be enhanced. For example, one technique for inducing positive set is through the use of analogies which have characteristics similar to the concept, principle, or central theme of the lesson. By training interns in set induction procedures and having them apply these procedures in microteaching sessions, their subsequent classroom teaching is significantly improved.

2. Establishing Appropriate Frames of Reference

A student's understanding of the material of a lesson can be increased if the material is organized and taught from several appropriate points of view. A single frame of reference provides a structure through which the student can gain an understanding of the materials. The use of several frames of reference deepens and broadens the general field of understanding more completely than is possible with only one. For example, the "Emancipation Proclamation" becomes more meaningful to the student when it is understood from the frames of reference of the Northern white abolitionist, the Southern white, the Negro slave in the seceded South, the free Negro, the European clothing manufacturer, the political leaders of England, and as an example of the reserved powers of the American President, than if it is simply discussed as the document issued by Lincoln which freed the slaves. Interns can be trained to become more powerful teachers as they are taught to identify many possible frames of reference which might be used in instruction, to make judicious selection from them, and then to present them effectively.

3. Achieving Closure

Closure is complimentary to set induction. Closure is attained when the major purposes, principles, and constructs of a lesson, or portion of a lesson, are judged to have been learned so that the student can relate new knowledge to past knowledge. It is more than a quick summary of the ground covered in a lesson. In addition to pulling together the major points and acting as a cognitive link between past knowledge and new knowledge, closure provides the pupil with a needed feeling of achievement. Closure is not limited to the completion of a lesson. It is also needed at specific points within the lesson so that pupils may know where they are and where they are going. Experience has indicated that interns can be trained in this skill.

4. Using Questions Effectively

The ability to ask provocative, answerable, and appropriate questions, and thus to involve pupils actively, is one of the critical skills in teaching. The micro-teaching clinic has proven to be an effective means for developing this skill. Novice teachers tend to ask questions which are either so general as to be vague and impossible to answer satisfactorily or so specific that they require a one-word "fill-in" response, which tends to kill further responses. This conclusion is based upon observation and analysis of more than 200 TV recordings of classroom lessons. Exercises for use in the micro-teaching clinic have been devised to build proficiency in preparing and using questions: factual, conceptual, thought-provoking, discussion-stimulating, heuristic questions. The procedure is first to instruct the intern in skillful questioning techniques, and then to have him view videotape demonstrations of skillful practice. He then applies these techniques in micro-teaching sessions. Through supervisor and student feedback, and by viewing videotapes of his practice sessions, the intern is helped to correct faulty responses and to consolidate his effective practices.

5. Recognizing and Obtaining Attending Behavior

Interns can be trained to become more sensitive to the classroom behavior of pupils. The successful experienced teacher, through visual cues, quickly notes indications of interest or boredom, comprehension or bewilderment. Facial expressions, direction of the eyes, tilt of the head, and bodily posture offer commonly recurrent cues which make it possible for the skilled teacher to evaluate his classroom performance according to the pupil's reactions. He can then change his pace, vary the activity, introduce new instructional strategies as necessary, and improve the quality of his teaching. Unlike his more experienced counterpart, the intern teacher has difficulty perceiving and interpreting these visual cues. Through 16mm motion picture films, 35mm still picture protocols of classrooms, and videotape recordings of interns in micro-teaching sessions, supervisors are able to sensitize interns to visual cues of pupils' attending and nonattending behavior.

6. Control of Participation

Micro-teaching sessions enable interns to analyze the kinds of pupil-teacher interaction which characterize their teaching. Control of pupils' participation is one important variable in successful learning for the pupils. Micro-teaching sessions provide an opportunity for interns to practice different techniques for encouraging or discouraging classroom interaction and to gain insight into the casual relationship between a series of teacher-pupil interactions. When an intern develops the skill to analyze and to control the use of his accepting and rejecting remarks, his positive and negative reactions, his patterns of reward and punishment, he has taken a major step toward effective teaching.

7. Providing Feedback

The feedback process in the training of teachers may be simply stated as providing "knowledge of results." Interns often ignore the availability of information accessible during the lesson. Questioning, visual cues, informal examination of performance, are immediate sources of feedback. Interns can be taught appropriate techniques to elicit feedback from a variety of sources, but unless they are sensitized, they tend to rely unevenly on a limited number of students as "indicators" and to rely on a restricted range of feedback cues.

8. Employing Rewards and Punishments (Reinforcement)

Reinforcing desired pupil behavior through the use of reward and punishment is an integral part of the teacher's role as director of classroom learning. Substantial psychological evidence confirms the value of reinforcement in the learning process. The acquisition of knowledge of specific techniques of reward and punishment and the development of skill in using them appropriately in specific situations is most important in training a beginning teacher. Experience indicates that interns can acquire skill through micro-teaching practice in reinforcement of pupil learning.

9. Setting a Model

The importance of analyzing and imitating model behavior is a basic assumption supporting the use of observation in a training program. Because of the brief, simple character of the micro-teaching situation, it is possible to provide good models of specific technical skills as an integral part of training. Models can be brief and relatively focused, hence more easily analyzed and imitated. Two levels of skill can be identified: the ability to analyze behavior and the ability to imitate it. Such skills, it is reasoned, will open a wider range of alternatives and provide for more effective self-perception.

WHERE MICRO-TEACHING FITS INTO THE TOTAL TRAINING

The development of skills in micro-teaching is not the whole or even the most important part of the full preparation of the teacher, but it is an essential part.

The main target is to ensure that effectiveness in the learning of pupils is nurtured by the best possible teaching procedures. This means that the aims of the training program must be clearly stated in behavioral terms. These include both the long-range and the immediate aims concerning the competencies in teaching and learning which have been spelled out in the Stanford Appraisal Guides. The immediate twin tasks facing the training program are the development of sufficient competence in a variety of technical skills so that the trainee will begin to be able to exercise good professional judgment in what should be done in any particular teaching situation he confronts. The training program which enables him to develop this power is, in our judgment, one which is organized around the major problems a teacher confronts in his teaching. It begins with limited practice in a micro-teaching situation and expands to a responsible part-time internship. The trainee simultaneously engages in systematic advanced instruction in the subject-matter field he is teaching and engages in a series of clinical exercises, through which he builds basic knowledge in professional education into teaching competence. A training program so conceived assumes as a prerequisite a person of both intellectual and personal excellence, who has a good liberal education and a thorough specialization in the field he is preparing to teach.

THE DEVELOPMENT OF THE MICRO-TEACHING CONCEPT

The forerunner of micro-teaching by several years was an exercise referred to as a demonstration teaching lesson, in which an "invented" game was taught by all interns at the outset of their training to a group of role-playing students. The main objective was to introduce a note of realism into the training at the very beginning. The trainees, for the most part, came to the program with the traditional view that prevails in a liberal arts environment: that about all that is needed for a teacher is to know his subject well. The demonstration teaching lesson proved to be a "shock treatment" which quickly, and, as we soon discovered, too powerfully demonstrated that knowing the subject is not enough.

In addition to the demonstration teaching lesson, an introduction to practice was provided in regular summer high schools, where intern-trainees could serve as observers and teaching aides. At the outset of the experimental internship program it was decided to try to develop a more efficient type of preparatory practice. The traditional practice teaching responsibility in a summer school appeared to suffer from two limitations. First, substantial responsibility for teaching an entire class prior to any professional training was judged to be premature for the trainee and questionable for the pupils enrolled, and second, the amount of time which an intern had to invest in the practice teaching experience was disproportionate in view of other summer training requisites.

Though the teacher aide program took less time than practice teaching and provided an opportunity for relevant preinternship practice, this, too, proved to have serious limitations, especially in the variety, depth, and evenness of the experiences available, as well as in costliness and inconvenience both to trainees and staff. Consequently, the micro-teaching clinic has developed to overcome some of these limitations and to increase the power of the training in the summer.

HOW MICRO-TEACHING HAS BEEN USED

The pilot application of the micro-teaching clinical procedures began in the summer of 1963. Trainees were randomly assigned to two groups; half were given the standard observation and teacher aide experience, and the other half, concentrated training in the micro-teaching clinic.

The micro-teaching clinic paralleled the other training provided during the summer quarter. The 30 interns who participated in the clinic received the same training as the other interns except that they did not participate in the field observation and teacher aide program and its associated activities.

The micro-teaching clinic allowed candidates to practice relatively small, discrete technical skills with intensive supervision, immediate critique, and opportunity to repeat the practice session, if necessary. The interns in the clinic participated in three micro-teaching practice sessions each week followed by 10-minute conferences with the supervisor. During the conference, the supervisor showed the intern the pupils' written evaluation of the lesson, as well as his own. Individual profiles of these ratings were constructed, to provide each intern with a record of his growth in teaching effectiveness and thus enhance his self-reliance and confidence.

By the end of the fifth week, most of the interns in the clinic group reached a level of consistent teaching performance with relatively small variations from lesson to lesson. By the end of the seventh week, the few remaining interns who earlier tended to vary widely began to be more consistent.

The format of the clinic was as follows:

1. Diagnostic Phase — Before entering training each intern demonstrated before a supervisor and a videotape recorder his raw skill in teaching a 10-minute lesson in his teaching field to a group of five high school pupils.
2. Training Phase — During this phase of the training, interns received formal training and immediately related practice sessions in six skills:

    a. Establishing set (2 weeks)
    b. Achieving Closure (1 week)
    c. Recognizing Attending Behavior (1 week)
    d. Controlling Participation (1 week)
    e. Building Instructional Alternatives (1 week)
    f. Disciplining a Class (1 week)

3. Concluding Evaluation — At the conclusion of the clinic the intern trainee demonstrated his teaching competence before a class of 10 pupils in a 15-minute lesson.

SOME FINDINGS OF CLINIC EXPERIMENTATION

The two principal sources of evaluation were pupils' and supervisors' judgments, recorded on the Micro-Teaching Appraisal Guide, consisting of eight items, each on a five-point scale. The correlation of pupils' and supervisors' ratings was .81 on the post-tests for the total group. Test, re-test reliability was .89 and split-half reliability was .84.

The findings during this period of experimentation were as follows:

1. Candidates trained through micro-teaching techniques over an eight-week period and spending less than 10 hours a week in training performed at a higher level of teaching competence than a similar group of candidates receiving separate instruction and theory with an associated teacher aide experience — involving a time requirement of between 20 and 25 hours per week.

2. Performance in the micro-teaching situation predicted subsequent classroom performance.
3. Over an eight-week period, there is a significant increase in the accuracy of the candidate's self-perception of his teaching performance through identification of weaknesses as well as strengths.
4. Candidates receiving student appraisal of their effectiveness improved significantly more in their teaching performance than candidates not having access to such feedback.
5. Ratings of video transcriptions of teaching encounters are correlated with live rating of the same encounters.
6. Trainees' acceptance of the value of micro-teaching is high.
7. Students' ratings of teaching performance is more stable than any other — including those of supervisors.
8. The skills subjected to experimental treatment in micro-teaching produced significant changes in the performance of intern teachers.

ADVANTAGES AND FUTURE USES

While micro-teaching has been chiefly employed for training, the following list of uses offers additional possibilities:

1. Training
2. Supervision
3. Recording Trainee Progress
4. Research
5. Prediction and Selection

Training in technical skills through micro-teaching is but one small part of the total process of preparing a teacher, but the results to date appear to offer several distinct advantages which warrant further exploration.

1. Micro-Teaching Simplifies the Complexities of Teaching

The isolation of specific aspects of teaching —

- provides more appropriate experiences for the beginner
- enhances precise research and experimentation

2. Micro-Teaching Permits Greater Control Over Practice

- provides wider range of possible subjects to be taught
- provides wider range of teaching within a subject
- insures variety of types of pupils (age, sex, etc.)
- makes possible variation in amount of practice according to need of trainee

3. Micro-Teaching Increases Economy of Operation

- makes time and location more convenient for training staff
- increases amount of practice possible within a limited period of time

- reduces facilities required for training
- reduces number of pupils required for training

4. Micro-Teaching Opens New Avenues for Evaluating Training

   - provides good records of teaching performance at periodic intervals under standard conditions
   - permits several judges to evaluate and to reevaluate a single performance

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The first definitive text on Micro-Teaching, *Micro-Teaching: A New Technique in the Training of Teachers* by Dwight W. Allen and Kevin Ryan, is due for publication in the coming months.

Mimeographed papers describing the Stanford Micro-Teaching Clinic, its procedures, and research findings, may be obtained from the School of Education, Stanford University.

DISCUSSION AND CLOSURE SESSIONS

(Time: 1-1/2 - 2 Hours)

A discussion and closure session followed the videotape presentation, the purpose of which was to clarify meanings and achieve understanding. The host institution could select its own resource person for this purpose or the project staff would secure the services of a qualified resource person for the institution.

This session, conducted by a qualified resource person, generally lasted from one and a half to two hours. The direction of the discussion was dictated by the participants and has ranged from a consideration of the validity of the system to a training session in the technique.

3A Project Resource People in Interaction Analysis:

1. Dr. Edmund J. Amidon — Temple University
2. Dr. John Hough — Syracuse University
3. Dr. Robert Rippey — University of Chicago
4. Dr. Elizabeth Hunter — Hunter College, City University of New York

3B Project Resource People in Micro-Teaching:

1. Dr. Dwight W. Allen — University of Massachusetts
2. Dr. William Johnson — University of Illinois
3. Dr. David Young — University of Maryland
4. Dr. Kevin Ryan — University of Chicago

(4A)

A MODEL OF TEACHER NONVERBAL COMMUNICATION
(Time: 52 Minutes)

by
Charles Galloway

Prepared for the AACTE Workshop in Teacher Education — 1967

INSTRUCTIONAL OBJECTIVES

At the end of these sessions each participant should be able to:

1. Describe the role played by nonverbal behavior in communications.
2. State reasons why nonverbal as well as verbal behavior should be taken into account when analyzing classroom interaction.
3. Identify forms of nonverbal behavior which may have significance in classroom communications.
4. Given a typical classroom situation, identify factors which suggest a relationship between the communications of attitudes and feelings and nonverbal expressions.

INTRODUCTION

Studies of teacher behavior provide data which give global glimpses of behavior when teachers are identified as dominative or integrative, teacher-centered or learner-centered, direct or indirect, or x, y, and z teachers. Such overarching rubrics are helpful to the researcher and to the student of teacher behavior in describing the overall pedagogical performances of teachers.

An assumption supporting many studies of teacher behavior has been that the communication process in a classroom represents a major datum for research activity. Much of this effort has centered on the amount, kind, and direction of verbal communication with little attention devoted to the nonverbal dimension. Analyses of classroom interaction have highlighted the importance of teacher influence on pupil behavior, learning, and attitude through the teacher's verbal behavior. Interaction must be understood as a process of influence, but it must include the nonverbal as well as the verbal.

The following quotations are intended to convey the relevance of nonverbal communication. There is a tendency of some researchers to overlook or to minimize the significance of nonverbal meanings in classroom interaction. Major reasons for such a lack of concern with the nonverbal can be traced to the difficulties of categorization, to the elusiveness of the meaning of nonverbal messages, and to the seemingly subordinate function which the nonverbal plays to the verbal. On the other hand, the statements of other recognized experts and researchers amply testify to the significance of nonverbal communication. The following support the notion that nonverbal communication should not be viewed as insignificant and irrelevant for a description of the teaching-learning process.

Gibb writes:

> The problem of poor communication is simply a symptom of all the other basic problems that people have relating to one another. A person's motivations and perceptions are the basic stuff out of which his interpersonal behavior is made. The manifestations of his perceptions and his motivations occur in verbal and nonverbal communication with other individuals....How the person communicates, his tone of voice, his facial expression, his choice of words, the amount and kind of his talk will all determine, in part, how the receiver perceives his communication.

Halpin states that training programs for school leaders —

> ignore the entire range of nonverbal communication, the muted language in which human beings speak to one another more eloquently than words.... To avoid the narrow view we must start by recognizing that man communicates to his fellow man with his entire body and with all his behavior.

Smith gives an account of the function of expressive behavior in teaching:

> These behaviors are illustrated in bodily posture, facial expression, tone of voice, expression of the eyes, and other ways....Expressive behaviors function in teaching because they are taken by pupils as signs of the psychological state of the teacher.

Mitzel and Rabinowitz insist that nonverbal communication plays a substantial part and should not be overlooked:

> A teacher's posture, gestures, and facial expressions undoubtedly convey meaning to children, and therefore influence the socio-emotional climate of the classroom. Even silence may be put to effective use by teachers in the control of classroom situations.

Mead had this to say about the "language of gestures" (nonverbal) which he believed was an unconscious level of communication:

> There are an indefinite number of signs or signals which may serve the purpose of what we term "language". We are reading the meaning of the conduct of other people when perhaps they are not aware of it. There is something that reveals to us what the purpose is — just the glance of an eye, the attitude of the body which leads to the response. The communication set up in this way between individuals may be very perfect. Conversation in gestures may be carried on which cannot be translated into articulate speech.

Jourard notes that a person will continuously read, or try to read, the motives of another person. He lists the most common bases that are employed for inferring the intentions and feelings of others:

> Social life in human groups can be viewed in one of its aspects as

a network of affective relations, operating the form of expressive stimulation and impressive response. It is this nonsymbolic interaction which seems to form the setting for the formation of the feelings which are intrinsic to and basic to social attitudes.

Regarding the various kinds of expressive equipment, Goffman states:

> One may take the term "personal front" to refer to the items of expressive equipment....As a part of personal front we may include: insignia of office or rank; clothing; sex, age, and racial characteristics; size and looks; posture; speech patterns; facial expressions; bodily gestures; and the like. Some of these vehicles for conveying signs, such as racial characteristics, are relatively fixed....Some of these sign vehicles are relatively mobile or transitory...and can vary during a performance.

Jenkins declares:

> The particular behavior of the teacher gains its meaning for the students from the particular relationship which they sense the teacher has with them....It makes little difference what the teacher's intentions are and how good the methods are that he uses; if he fails to see what meaning his behavior has for the students he will not be able to understand their reactions to him.

One of the implied results of the Davidson and Lang study was that teachers communicate different feelings toward children:

> Teachers seem to vary in their inclination and/or their capacity to communicate favorable feelings. It seems urgent that teachers be helped to recognize the significance of the feelings which they express toward children, consciously or unconsciously.

During interaction (teacher-pupil) (pupil-pupil) all signs, actions, and events have communicative consequences because such messages provide information. By our very nature, human beings are compelled to communicate: to send and receive messages. Pupils are constantly on the alert to discover relevant data which serves the function of lessening confusion and of increasing understanding. Much information in the classroom is in the form of the nonverbal messages.

While it is appropriate to analyze what the teacher says, does, and feels in the classroom, the more profound pedagogical problem is how he expresses his feelings. How the teacher communicates his perceptions, motivations, and feelings can be identified with vocal tones, facial expressions, gestures, and actions. Such expressions determine in a large measure how pupils perceive the teacher when he either is talking or is silent. If the teacher fails to understand what his message-sending conveys to pupils, he will often not be able to comprehend the meaning of their responses.

In highlighting the significance of nonverbal cues, the intent is not to conduct an analysis which purportedly discovers esoteric meanings. To investigate nonverbal messages is not to become extremely sensitive or fussy over the ordinary behaviors of teachers. Nor is the purpose to begin inspecting the subterranean caverns and nooks of meaning which may lurk behind every action. Rather the purpose is simply to call attention to the interplay of nonverbal messages between teachers and pupils, because such messages do, in fact, influence the course of classroom interaction.

Anthropologists, sociologists, and psychologists have gone beyond the obvious explanations of the explicit culture, expected role performances, and nomothetic behaviors to explain the meaning of human activity. A graphic illustration of this point can be delineated by the following model:

Anthropologist:	Sociologist:	Psychologist:
Cultural Behaviors	Role Behaviors	Personal Behaviors
Acculturation	Interaction	Personality
Implicit Meaning	Empathic Meaning	Inferred Meaning

A cultural view of the teacher's nonverbal influence in the classroom is implicit in the research efforts of many anthropologists. Contemporary anthropologists agree that an ability to determine an individual's state of feeling by looking at facial expressions, observing gestures, or listening to the sound of a voice is a learned ability. In fact, it is accepted that any such ability is not inherited or innate. Indeed, the evidence suggests that nonverbal languages of behavior vary according to different cultures and subcultures, and that nonverbal cues are relevant to the acculturation process.

A sociological view of nonverbal communication is related to an analysis of role behaviors and performances. Terms such as expressive equipment, model behaviors, attitude formation, and empathic understanding can be associated with the sociologist's concern with the significance of nonverbal communication. In order to play a role it is important to communicate the appropriate nonverbal signals and cues that are consonant with its performance.

A psychological view of a teacher's nonverbal influence is obviously connected to the emotional and affective content of interaction. That is, expressive acts suggest a promissory character of the teacher's selfhood. Expressive behaviors function in teaching because nonverbal signs are assumed by pupils to represent the psychological state of the teacher. Especially relevant to the psychological dimension is the fact that by interpreting and inferring from nonverbal expressions, pupils obtain the full import of a teacher's perceptions, motivations, and feelings.

COMMUNICATION PROCESS IN THE CLASSROOM: VERBAL AND NONVERBAL

Most definitions or models of the communication process are abstract. Explanations range from the Shannon-Weaver model, which describes electronic communication, to the Ruesch-Bateson description, which includes anything to which persons can assign meaning. However, the four major ingredients which researchers agree are common to human communication are (a) sender, (b) message, (c) channel, and (d) receiver.

A sender of communications has ideas, interest, information, needs, and sentiments which he attempts to encode in the form of messages. Given a sender who sends messages, a channel is necessary. The channel is the carrier, the medium, or the vehicular means for transmitting messages. The communications channels are the verbal and nonverbal skills possessed by the sender and the sensory skills possessed by the receiver. Once the message is decoded by the receiver, it has reached a destination which can be considered the response, interpretation, or meaning the receiver assigns to the message. If the receiver answers, the communication cycle begins anew.

A requirement of communication in the classroom is that the symbols a teacher chooses from his repertoire must satisfy his own peculiar requirements and meaning, and must evoke a similar meaning in the pupil. Communication is successful when the teacher and pupil agree on the interpretation which should be put on the message. Perfect communication is rarely achieved, however, because words are at best mediating symbols between the expressed intent of an inner state of being and the achieved effect they elicit. Vocal tones, facial expressions, and body gestures are remarkable communicative means for codifying more precise meanings and for changing the dictionary definition of words. Teachers and pupils are generally aware of the power of nonverbal signals, and they use them extensively.

Although an exchange of ideas may be almost purely at the cognitive level, communication messages usually carry a burden of manifold meanings, for attitudes and feelings are exchanged. A failure to interpret or to be aware of the many affective implications of ordinary speech (nonverbal as well as verbal) can be a grave handicap and a profound difficulty for truly understanding the effects of communication. Nonverbal expressions are particularly efficient for creating an impression since they form the channels for the disclosure of feeling. Such emotions and feelings can stem from the unwitting, unconscious responses which a pupil makes to the nonverbal expressions of a teacher. There seems to be an understanding of another without any conscious awareness. Yet those nonverbal messages are often difficult to identify since what occurs communicatively is differentiated in terms of each pupil's reactions: they are personalized interpretation. In lay language, such a process is referred to as being "in tune" with another.

Conversely, it would be naive to believe that all nonverbal expressions convey actual feelings and attitudes. Indeed, nonverbal signs may be calculatingly managed to form impressions of self and to influence the perceptions of others. When interacting with pupils a teacher can adroitly manage expressive behavior to achieve a desired effect. A teacher seems to understand the serious consequences of expressive behavior, just because he realizes that it is the very focus of pupils' observations. Thus, a teacher will engineer expressions and calculatingly convey impressions which are in his own interests. More important, even though a teacher may manage his expressive behavior to foster an impression, he may be relatively aware or unaware that he is doing so. A similar description also applies to a pupil who may appear to be engaged busily at his desk doing seatwork.

Whether nonverbal expressions are staged or spontaneous, pupils use nonverbal signs to check on the fidelity of a teacher's verbal statements. Pupils read the meanings behind nonverbal expressions, for these expressions are heavily relied upon to reveal the authenticity and genuineness of a message communicated by the teacher. For example, a teacher may verbally utter an approval of some seatwork a pupil is doing, yet the pupil may pick up cues which suggest disapproval. Although a teacher may verbally insist with the most persuasive language that he holds a certain belief, a pupil will continually check the teacher's nonverbal expressions to see if a contradiction exists. Throughout the course of a teaching day, a teacher may believe that he is communicating, I enjoy this subject, aren't these ideas interesting? I like you, when all the time the pupils in the classroom are understanding different meanings. That is, a discrepancy exists between what the teacher says and what the teacher nonverbally expresses. In effect, pupils will gauge the intent or meaning of a teacher's communication by attending to the expressive aspects of his behavior as a check on the verbal. If a difference exists between the two expressions, the pupil will most often accept the nonverbal as representing the authentic message.

The interaction of being understood and of trying to understand others is fraught with difficulties: discrepancies or incongruities can occur between verbal intent and nonverbal referents. Teachers vary in their ability or inclination to facilitate the urgencies of communication, for they are often unaware of the nonverbal messages they express and the consequences which follow. Communication breaks down when it is believed that meanings are in words, rather than in people. "I told him" is a favorite expression used by teachers to convey the view that meanings are verbal messages. Teachers do need to understand that communication does not consist solely in transmission of words.

The ability to respond appropriately to the influence and effect of one's message-sending when communicating with others appears to be a learned ability. Teachers need to be more aware of the connection between the messages they communicate and the consequences which follow. Teachers also need to capitalize on nonverbal cues which are expressed by a pupil as keys to clarity and understanding. How a teacher communicates nonverbally will determine how a pupil interprets the meanings of messages, but a response is also determined by the perceptual state of the pupil.

Teaching is a highly personal matter, and prospective teachers need to face themselves as well as to acquire pedagogical skills. The need to accept, modify, or eliminate nonverbal behaviors is a relevant dimension for inquiry in teaching. While nonverbal communication in the classroom is less amenable to systematic objective inquiry than verbal communication, the meanings pupils ascribe or impute to a teacher's nonverbal messages have significance for teaching and learning.

MODEL OF NONVERBAL COMMUNICATION

The teacher's nonverbal behavior constitutes a model which ranges from *encouraging to restricting communication*. Viewing a teacher's nonverbal communication as an encouraging to restricting continuum has the advantage of being related to the communication process and of being indicative of subsequent interpersonal relationships between a teacher and pupils. The model is also useful in regarding the potential influence and consequence of a teacher's nonverbal behavior with pupils. This conceptualization reflects a process point of view: an action system of nonverbal behaviors which exists in dynamic relationship to the continuing influence of the teacher and pupil in interaction with each other.

The model represents six dimensions of nonverbal activity. Encouraging nonverbal communication has these six characteristics: (a) congruity between verbal intent and nonverbal referents; (b) responsive to feedback; (c) positive affectivity; (d) attentive and listens to others; (e) facilitative by being receptive to others; (f) supportive of pupils or pupil behavior. Restricting nonverbal communication has these six characteristics: (a) discrepancy between verbal intent and nonverbal referents; (b) unresponsive to feedback; (c) negative affectivity; (d) inattentive to others; (e) unreceptive to others; (f) disapproving of pupil behavior.

The model can be schematized as follows (the left side of the model is communication which is teacher initiated, and the right side is viewed as teacher response).

Teacher Initiated	Teacher Response
Congruity-Incongruity	Attentive-Inattentive
Responsive-Unresponsive	Facilitative-Unreceptive
Positive-Negative Affectivity	Supportive-Disapproving

Congruous-Incongruous — This dimension refers to the congruity or incongruity which exists between the voice, gesture, and actions of the teacher and the verbal content communicated by the teacher. Congruity occurs when the teacher's verbal message is supported and reinforced by nonverbal behaviors to the extent that there is consonance between the verbal intent and nonverbal referents. A mixed message or incongruity exists when there is a discrepancy or contradiction between the verbal message and nonverbal information.

Responsiveness-Unresponsiveness — A responsive act related to modifications in the teacher's behavior as a result of feedback. Verbal feedback occurs when the teacher hears himself talking, but nonverbal feedback is based on the reactions and responses of pupils to the teacher. A responsive act occurs when the teacher alters the pace or direction of a lesson as a result of a detection of misunderstanding of feelings by pupils. Operating on the basis of pupil behavior the teacher uses feedback data to "feedforward" with changed information. Unresponsive acts are an ignoring or insensitivity to the behavioral responses of pupils.

Positive-Negative Affectivity — Positive nonverbal expressions convey warm feelings, high regard, cheerful enthusiasm, or displays of liking and acceptance. Negative nonverbal expressions convey aloofness, coldness, low regard, indifference, or display of rejection.

Attentive-Inattentive — Nonverbal expressions which imply a willingness to listen with patience and interest to pupil talk. By paying attention, the teacher exhibits an interest in pupils. By being inattentive or disinterested, the teacher inhibits the flow of communication from pupils, and neither sustains nor encourages sharing information or expressing ideas.

Facilitative-Unreceptive — The teacher is facilitating when acting to perform a function which helps a pupil, usually in response to a detection of pupil needs, urgencies, or problems. This may be in response to a pupil request or act. An unreceptive act openly ignores a pupil when a response would ordinarily be expected, may ignore a question or request, or may be a tangential response.

Supportive-Disapproving — Expressions which imply supportive pupil behavior or pupil interactions; manifest approval; suggest being strongly pleased; exhibit encouragement; connote enjoyment or praise. Disapproving expressions convey dissatisfaction, discouragement, disparagement, or punishment. The expression may be one of frowning, scowling, or threatening glances.

PROBLEMS AND PROMISES

The difficulty of developing a wholly adequate observational procedure for describing teacher nonverbal communication has been the strongest conclusion which has resulted from the present writer's empirical work. Much of this effort has, in fact, been exploratory. While observational procedures which provide faultless data for verbal interaction have not been developed, it must be admitted that greater advances have been made with the verbal than the nonverbal. There is currently no observational technique which provides valid data regarding the communicative effects of teacher nonverbal expressions independent of the verbal. The position taken here is simply that any analysis of teacher-pupil interaction must include the nonverbal as well as the verbal.

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(4B)

THE LONGACRE SCHOOL: A SIMULATED LABORATORY FOR THE STUDY OF TEACHING

(Time: 47 Minutes)

by
Donald R. Cruickshank

Prepared for the AACTE Workshop in Teacher Education — 1967

INSTRUCTIONAL OBJECTIVES

At the end of these sessions each participant should be able to:

1. Define simulation.
2. Enumerate some premises underlying the use of simulation materials.
3. Describe in detail (a) the origin of the Teaching Problems Laboratory, (b) the Laboratory setting, and (c) how the game is played.
4. List five possible advantages or applications of the use of the Laboratory or other like simulation materials.
5. Project a research use for the Laboratory materials.

AN OVERVIEW OF THE LONGACRE SCHOOL PROJECT

An elementary school has been simulated wherein participants or players assume the role of Pat Taylor, a fifth grade teacher, and practice solving critical teaching problems which are presented on film, through role plays, and in written incidents. Each participant is provided with substantial background information in order to aid in problem solving.

The simulated experience is intended to provide opportunities for college students and/or teachers in service to wed theory and practice as they engage in individual and group problem solving focused upon the following broad areas, among others: student behavior, relationships with parents, individualizing instructional materials, evaluation, and motivation.

Simulation as a Proposed Solution to an Old Problem

In the AACTE publication Teacher Education and the New Media, Schueler and Lesser suggest some outcomes of a teacher education program in gross categories of teacher competencies such as: "(a) knowledge of the goals of teaching and their implications, (b) knowledge of subject matter and skills to be taught..., (c) knowledge of students and social and individual factors affecting their development, (d) knowledge of environmental and social factors affecting the school and its functions, and (e) self-knowledge, self-development, and self-appraisal...."[21]

The authors go on to note that learning activities which lead to any of the above outcomes may be placed along a continuum between two polar points described as foundational (learning and theorizing about phenomena through indirect experience as in reading, observing, listening) and instrumental (learning through direct experience as in student teaching). To illustrate using outcome (c) above, knowledge of students can be attained through one or a variety of experiences which may be placed somewhere between two points designated as foundational and instrumental. Simplifying further, a student may learn about children indirectly and generally by reading or attending lectures in courses in human growth and development and child psychology. He may learn about children directly and particularly by interacting with one or many in a variety of field experiences.

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[21] Schueler, Herbert and Lesser, Gerald S. Teacher Education and the New Media. Washington, D. C.: American Association of Colleges for Teacher Education, 1967. p. 12.

Although teacher preparation programs usually provide more foundational exercises, typically they draw upon both methods, or combinations thereof. There are times when it is more desirable to attain an outcome using an instrumental or more direct approach, but special factors including the geographical isolation of an institution, numbers of students to be served, etc., prohibit anything but use of foundational experiences.

The usual imbalance and gap between foundational and instrumental experiences in preparation programs is reflected in the oft-mentioned dichotomy between theory and practice. Students and classroom teachers alike glibly note that what they learn in the college classroom doesn't seem to apply in real-life school settings — that the two worlds are not in harmony. As early as 1904, John Dewey was concerned with the need to relate theory to practice:

> We may use practice work as an instrument in making real and vital theoretical instruction; the knowledge of subject matter and principles of education. This is the laboratory point of view...practice work thus...gives the student a better hold upon the educational significance of the subject matter he is acquiring....[22]

More recently, LaGrone stated:

> The professional component of a program of teacher education for the last 25 or 30 years has taken for granted that the teacher education student will put together the talk about education and his teaching. The recent research in teaching and work in theory indicates that this is an extremely difficult task and that an assumption of this magnitude is more likely false than true.[23]

With the advent of the newer media and the adaptation of an old training technique, simulation, it is now possible for teacher educators to provide more life-like learning situations of an instrumental nature which also permit theory and practice to be joined. That is, life-like situations or incidents may be created which will permit learners to apply theoretical analysis to them. For example, a phenomenon such as "student behavior" may be recreated, observed, and then analyzed in terms of a variety of constructs which previously have been presented to students in theory classes. Among other phenomena, the simulated classroom setting provides opportunity to study teacher behavior, student behavior, curriculum, social relationships, values, or individual differences. Further, the devised experiences, unlike individual case studies, may be placed in a realistic setting and systematized in such a way that one may participate as a hypothetical teacher in a long-range, in-depth experience which is both intellectually and psychologically engaging. An example of a simulated laboratory experience will be presented after some preliminary remarks are made about the technique itself.

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[22] Dewey, John. "The Relation of Theory to Practice in Education." The Relation of Theory to Practice in the Education of Teachers. Third Yearbook of the National Society for the Scientific Study of Education. Chicago: University of Chicago Press, 1904.

[23] The American Association of Colleges for Teacher Education. A Proposal for the Revision of the Pre-Service Professional Component of a Program of Teacher Education. Washington, D. C.: The Association, 1964. p. 63.

What Is Simulation?

Many definitions exist for the term simulation, and the technique has been employed at several levels of sophistication. Here, the term will refer to the creation of realistic games to be played by participants in order to provide them with life-like problem solving experiences related to their present or future work.

Games which have been created as training devices are well known. War games, introduced in ancient Greece, have been expanded and refined for centuries. The best known simulator is the Link flight trainer developed during World War II. Today, Eastern Air Lines employs a simulated Boeing 727 jet for pilot training. The recent tragedy at Cape Kennedy drew attention to the application of simulator training in space exploration.

The business sector has made a sizable investment in simulator training. The American Management Association has developed and refined a "Top Management Decision Making Game," while Harvard University has created a "Harbits Company" wherein future corporation vice presidents practice "constructive failure."

Simulation seems to have been first employed successfully in education in driver-training programs. A description of a driving simulator is provided by Richards.

> The driving compartment of an automobile is duplicated....It is a single unit which is equipped with an accelerator, brake pedal, steering wheel, gear shift, directional signal, horn button, light switch, headlamp....All these controls are electronically connected to the master unit so that the instructor may record on a continuous score card, the action of the controls....
>
> Driving situations to which the students react are flashed on a screen in front of the car simulator. The motion picture film

> confronts the students with such operations as steering through complicated situations, parallel parking, etc.....[24]

Guetzkow has produced simulation materials which appear to be promising for teaching basic concepts of balance of power, collective security, military aggression, isolationism, sovereignty, and international law, among others.[25] Using similar materials at Lawrence, Kansas, Cherryholmes involved college preparatory students in a six-week simulation game in international relations. In this project, three students were assigned to each nation, occupying positions of Central Decision Maker, Chief Diplomat, and Military Advisor. These roles are defined as follows:

> The Central Decision Maker has the final authority to determine the policies of his nation. The Chief Diplomat is the only official who may conduct oral negotiations with other nations, and the Military Advisor is responsible for maintaining the military posture of his nation and for securing accurate information concerning the military strength and intentions of other nations.[26]

In the late 1950's, University Council for Educational Administration in its Development for Criteria Study simulated the administrative position in the public elementary school.[27] The simulation materials, through films, filmstrips, tape recordings, and printed material, introduce each participant to Jefferson Township and the Whitman Elementary School. Following orientation, each participant assumes the role of Marion Smith, principal, and engages in problem solving activities centered around administration and leadership.

Kersh[28] built a simulation laboratory at Oregon College of Education in which attempts were made to shape student teaching behavior using film clips and a feedback procedure. Other applications of simulation are developing rapidly in the fields of counselor training (Dunlop, University of Missouri at Kansas City; Munson, University of Rochester), teaching of reading (Utsey, Wallen, Beldon, Oregon System of Higher Education), student teaching (Kersh, Twelker, Oregon College of Education), preparing teachers to work in desegregated schools (Venditti, Cruickshank, University of

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[24] Richards, William T. "Simulation: What Is It and What Does It Offer?" Wisconsin Journal of Education. p. 12; April 1964.

[25] Guetzkow, Harold, editor. Simulation in Social Science: Readings. New Jersey: Prentice-Hall, 1962. 199 pp.

[26] Cherryholmes, Cleo. "Developments in Simulation of International Relations in High School Teaching." Phi Delta Kappan 46: 227-31; January 1965.

[27] Hamphill, John and others. Administrative Performance and Personality. New York: Teachers College, Columbia University, 1962.

[28] Kersh, Bert Y. "The Classroom Simulator." Journal of Teacher Education 13: 109-10; March 1962.

Tennessee), preparing teachers to work with disadvantaged in inner cities, (Cruickshank, University of Tennessee), teacher selection (Bolton, University of Washington), and professional negotiations (Horvat, Indiana University).

The Teaching Problems Laboratory

One effort which employs media to simulate a teaching environment in an effort to wed theory and practice is the Teaching Problems Laboratory.[29] Revised from an original study by Broadbent, Bubb, Cruickshank, and others through a Cooperative Research Grant,[30] the Laboratory creates the Longacre Elementary School, in which participants assume the role of Pat Taylor, a beginning fifth grade teacher, and practice solving 31 critical teaching problems which are presented on film, through role play, and in written incidents.

Among other things, the Laboratory is designed to permit participants —

1. To assume the role of a beginning teacher.
2. To have access to and use related, appropriate professional information and materials.
3. Unfettered opportunities to solve critical problems of beginning teachers.
4. Exposure to a variety of potential solutions to particular problems.
5. To consider possible consequences of their problem solving behavior.

The Teaching Problems Laboratory experience begins as Pat Taylor is introduced to the Town of Madison and its school system via a filmstrip narrated by Dr. Raymond Black, Superintendent of Schools. Immediately after, in another filmstrip, Frank Jones, the Longacre School principal, provides Pat with a detailed orientation to the school attendance district, school, faculty, and program. At the conclusion of the orientation session, Pat is given materials normally provided for a new staff member at Longacre, including a faculty handbook of rules and regulations, a curriculum handbook, and cumulative record cards for 31 children. In addition, sociograms and samples of children's work are provided. From this time on, each participant assumes the role of Pat Taylor.

Engagement occurs initially when Pat encounters Jack Brogan, a constantly disrupting child, in a filmed classroom incident. In all, Pat encounters 31 incidents, all representative of problems identified by teachers in service. Problems vary from "having a distaste for grading papers" to

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[29] Cruickshank, Donald R., Broadbent, Frank W., and Bubb, Roy. Teaching Problems Laboratory. Chicago: Science Research Associates, 1967.

[30] Cruickshank, Donald R. and Broadbent, Frank W. The Simulation and Analysis of Problems of Beginning Teachers. (U. S. Office of Education Cooperative Research Project 5-0798.) Knoxville: University of Tennessee, 1967.

"getting parents to take an interest in their children's behavior."[31] Ten of the incidents are presented by film, while the rest are encountered through role playing or written incidents.[32]

After encountering each initial teaching problem, Pat Taylor responds on an incident response sheet which requires her to (a) identify the problem, (b) identify forces and factors affecting the problem environment, (c) locate pertinent information, (d) project alternative courses of action available, (e) select a "most desirable" course of action, and (f) communicate and implement a decision. Following individual problem analysis and response on the Critical Incident Response Sheet, participants interact in groups of four, projecting their solutions for group reaction. Finally, a large group session further explores the problem.

There are no "correct" answers in this simulated experience. Rather, each participant is encouraged to "stretch" his teaching behavior, i.e., to consider employing a greater number of alternative solutions to classroom problems.

The simulated laboratory experiences require participants, among other things, to construct a classroom test, hold parent conferences, prepare and teach meaningful lessons, locate instructional materials, develop a reading program, solve student behavior incidents, learn to use children's cumulative records, consider motivational techniques, prepare behavioral objectives for learning, analyze and use results of sociograms, and provide for individual differences in learning.

Of What Value?

Preliminary results from two field tests conducted with undergraduates provide supportive data thus far. Participants who underwent simulator training in place of the first two full weeks of student teaching reported that it was very enjoyable, realistic, very helpful, much more meaningful than college lectures, and would be more valuable to them than the first two weeks of student teaching they had missed.

In addition they noted that (a) they felt involved in the devised situations, (b) the small group discussions were useful in aiding them to develop their own concepts of teaching, (c) the simulation experiences were very helpful in developing methods of coping with classroom problems, and (d) they would recommend simulation training to their friends.

Further Advantages and Applications of Simulation

In addition to providing a setting wherein theory and practice may be wedded, simulated settings such as the Teaching Problems Laboratory may serve to:

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[31] A complete list of the 31 problems is found in Appendix A.

[32] A sample of a written Critical Teaching Problem which develops into a role play is attached as Appendix B.

1. Provide intensive focused opportunities to study and to analyze critical teaching problems which may not occur during student teaching or other preservice activities.
2. Increase student interest in the professional education sequence.
3. Provide opportunities for unfettered problem solving free of censure and failure.
4. Shorten the required student teaching or internship requirement.
5. "Open" teaching behavior.
6. Decrease teacher problems, thereby reducing teacher failure and turnover.
7. Aid in teacher recruitment and selection as a situational test.
8. Orient beginning teachers.
9. Provide guided in-service experiences for teachers experiencing difficulty.
10. Permit classroom teachers to analyze their own classroom behavior.
11. Substitute for student teaching or internship settings when they are not available.
12. Stimulate research regarding teaching problem solving behavior, or the prediction of teaching behavior from behavior in a simulated setting.

As Cunningham states:

> My personal view of simulation is that it is the most promising single innovation...that we have available today. Much, indeed most, of its potential remains to be activated; we have only begun to invent appropriate means for its usage.[33]

It is appropriate that simulation materials should take their place alongside the many other means that college teachers, school principals, and supervisors use to present the real world of teaching to both preservice and in-service teachers. There can be no serious opposition to the concept of simulation: the real issue is whether or not such experiences may be used effectively to shift the behavior of the user and thereby improve teaching.

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[33] Cunningham, Laverne L. "Simulation and the Preparation of Educational Administrators." Paper presented at the University Council on Educational Administration International Intervisitation Conference, University of Michigan, October 1966. p. 27.

APPENDIX A

LIST OF CRITICAL TEACHING PROBLEMS*

Critical Teaching Problem	Description	Method(s) of Presentation
1	Handling the constantly disrupting child	film
2	Getting students to do homework	written; role play may be used incidentally
3	Not knowing how to evaluate teaching objectives	written
4	Handling children's aggressive behavior toward one another	film
5	Finding films and film strips related to the area being studied	written
6	Finding appropriate reading materials for readers one or more years below grade level	written
7	Differentiating instruction among the slow, average, and gifted children in class	written; role play may be used incidentally
8	Students not motivated to work on class assignments	film
9	Having a distaste for grading papers	written
10	Not knowing what to do with students who finish work early	film
11	Having students see relationship between undesirable behavior and its consequences	written
12	Involving many of the children in group discussions	film

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* Identified in Cooperative Research Project 5-0798.
Cruickshank, Donald R. and Broadbent, Frank W. The Simulation and Analysis of Problems of Beginning Teachers. (Cooperative Research Project 5-0798.) University of Tennessee and State University College at Brockport, New York.

Critical Teaching Problem	Description	Method(s) of Presentation
13	Discussing with parents their children's unsatisfactory achievement	written, incident, and role play
14	Relating a complex subject meaningfully to children	written
15	Unhappy with classroom clerical work	film
16	Integrating the isolated disliked child	written
17	Having trouble interpreting children's true capabilities to parents	written, incident, and role play
18	Having children do independent work quietly	film
19	Telling parents that their children have serious problems	written, incident, and role play
20	Providing appropriate work for the class while at the same time working with a small group or individual child	film
21	Helping a student with a destructive home situation	written; role play may be used incidentally
22	Needing help in selecting instructional materials	written
23	Involving pupils in self-evaluation	written
24	Being impatient with students	film
25	Not knowing how to deal with a child's reading problem	film
26	Lacking enthusiasm for a subject	written
27	Getting parents to take an interest in their children's school and class work	written
28	Feeling uncomfortable about giving failing grades	written and role play

Critical Teaching Problem	Description	Method(s) of Presentation
29	Feeling nervous when supervised	written
30	Being able to prepare valid classroom tests	written
31	Being unable to contact a parent	written

APPENDIX B

CRITICAL TEACHING PROBLEM 17

Pat Taylor is handed the following note by Gregory Callison:

Dear Teacher,

My wife and I took one look at Gregory's report card on Friday and nearly fainted. What's the matter with the boy? We have done everything two parents can do to help. He has encyclopedias and all kinds of reference books to help him.

His report card has upset his mother terrifically and she is having another case of nerves.

We both wonder what good it did to hold Greg back twice in school. He just gets farther behind.

Greg is our only son, you know, and we would like him to be somebody important. Last year Mrs. Markle told us things were fine but now I don't know what to do. Will he fail fifth grade too?

We've talked to psychologists, social workers, doctors, and anybody else the school has suggested but none of it seems to have done any good.

Greg tells me that he has an art class at eleven o'clock tomorrow, Tuesday. I'll take time off to see you if it's all right. Please let me know this afternoon.

Yours truly,

Mr. Callison

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DISCUSSION AND CLOSURE SESSIONS
(Time: 1-1/2 - 2 Hours)

A discussion and closure session followed the videotape presentation, the purpose of which was to clarify meanings and achieve understanding. The host institution could select its own resource person for this purpose or the project staff would secure the services of a qualified resource person for the institution.

This session, conducted by a qualified resource person, generally lasted from one and a half to two hours. The direction of the discussion was dictated by the participants and has ranged from a consideration of the validity of the system to a training session in the technique.

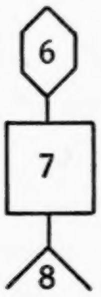
5A Project Resource People in Nonverbal Communication:

1. Dr. Charles M. Galloway — Ohio State University
2. Dr. Russell French — Ohio State University

5B Project Resource People in Simulation:

1. Dr. Donald R. Cruickshank — University of Tennessee
2. Dr. Frank Broadbent — Drake University
3. Dr. Roy Bubb — State University of New York, College at Brockport

The final three sessions of the workshop are presented to the total group of participants on the third day. They are:



Structural Analysis

Media Analysis

Alternatives

STRUCTURAL ANALYSIS SESSION

Up to now participants have been immersed in a sample set of possible components of a teacher education program. While each of them is useful in its own nature, they have been used in this workshop to demonstrate the effectiveness of media in activating human conceptual learning (i.e., participant learning) at a high level of efficiency.

If in this short time something important has been learned about the four components, it is because media were used skillfully to enable participants to perceive and to understand them. Participants are now invited to turn their attention from the content of the workshop itself as an instrument for effective teaching.

Particularly it is suggested that one examine the manner in which the basic nature of human conceptual learning has been used deliberately as the design for the workshop structure. Two features of that design are of central importance — the nature of learning and its sequential flow, and the nature of human perception and the use of media to facilitate it.

ANALYSIS OF THE WORKSHOP BY ASAHEL D. WOODRUFF

We began this workshop with some objectives. They were to:

(S-1) 1. Demonstrate some selected elements of an undergraduate program.
(S-2) 2. Demonstrate the integrated and functional use of media in instruction.
(S-3) 3. Demonstrate that media are essential to the effective activation of any complete idea of learning.
(S-4) 4. Make the relationship between media and learning visible and rational.

These were to be done by the very practical means of conducting a real learning experience. Two concepts about teaching and two useful techniques for providing experience in teaching have been achieved. You should now be able to carry out the four behaviors presented as objectives.

(S-5) Let us examine the relationship between human behavior and the learning process, on the one hand, and the format of the workshop, on the other. We can do this by focusing on three questions:

- Does the workshop fit what we know of learning?
- Is it a useful model for the education of teachers?
- Are the media used effectively?

Our analysis logically might begin by making distinctions among five (OV 1 on) pervasive facets of the educative process which are involved in this workshop and which are found equally in any instructional unit. Those elements are the content, the program, the media, the learning process, and the instructional process (OV 1 off).

(S-6) We should begin with the learning process, because it must be our basic guideline for everything else we do. The purpose of teaching is to facilitate learning; but learning is described empirically as a change in the behavior of the student, and it has become quite clear to us in recent years that behavior changes only while it is going on. What this says in effect is that there is no such thing as learning by itself. There is only behavior, which is sometimes characterized by the fact that it undergoes a change. Consequently, our basic phenomenon is the behavioral process.

(S-7) A highly useful way to visualize the behavioral process is to see it as a cycle and to regard the thinking human being as a cognitive energy system. The cybernetic model is particularly appropriate to portray behavioral functions. A cybernetic or energy system has an input process; a storage and organizing process; a decision making process, consisting of the application to an environmental situation of what is stored; and an overt trial output, the consequences of which are picked up by the intake organs and functions and fed back into the storage and organization function.

In regular empirical behavior of the kind which makes up most of our lives outside school, the interaction between the trial phase and the storage and concept formation phase is the key to the shaping of behavior. In other words, concepts are used to direct behavior, and the effects of behavior feed back into the conceptual structure and either validate it or change it in the light of experience.

(S-8) Let's see how this looks when it is viewed step by step. We can begin by thinking of the learning process as the learner's behaving-learning cycle consisting of sensory input, concept formation, use of concepts in decision making, and behavior output and feedback. Let's add the (S-9) student to the picture and begin with his (S-10) sensory intake process through his receptor organs. Then we can add the percept (S-11) storage and concept formation phase, which can be called thinking. Now (S-12) we can add the decision making phase, which anticipates consequences both rationally and affectively and commits an individual to a trial or (S-13) response action. The trial phase completes the cycle and gives it its cybernetic quality. The blue arrows going in reverse direction merely suggest that there is a constant and intimate interaction between any one phase of this process and its preceding and following phases as the student thinks about what he is doing. The most powerful impact, however, is the feedback from an empirical trial behavior, which provides the reinforcement or de-inforcement that shapes both concepts and instrumental behaviors (S-14).

We can now see how a concept of teaching may be derived from the nature of learning. We can begin with the assumption that teaching is the facilitation of learning. The (S-15) learner's cycle of behavior and learning is our point of origin, and occupies the center of the stage. If the (S-16) teacher's function is to facilitate behavior in such a way that it changes in appropriate directions, then the teacher's tasks are determined by the nature of the learner's behavior.

If the student has to perceive, then the teacher's function is to guide the student's perception of the materials which are used to portray whatever the student is supposed to see (shown at the left in the cycle). When the student is supposed to form concepts (shown on the top of the figure), the teacher's function is to guide the student's interpretation of acquired percepts and reinterpretation of those percepts after an adjustive response. When the student is to make decisions using those concepts, the teacher's function is to guide the student's use of his concepts and data in selecting his next adjustive response to a situation (shown on the right side of the figure).

When the student's task is to execute a decision and make an adjustive response to a situation, the teacher's task is to guide the student's performance of the adjustive response and then to assist the student in making a valid and useful interpretation of the consequences of his behavior (shown at the bottom of the figure).

(S-17) The teacher's task is extended further by the fact that he makes some advance preparations before he meets the student. These are indicated at the left of our illustration as the teacher's pre-teaching phase, which includes preparing an instructional unit and setting up the learning theater. Thus, we have a teaching cycle built on the student's learning cycle. Trace it through two pre-teaching steps, followed by four phases of teaching matched to the four cyclical phases of the learner's natural behavior (S-18).

Since we are setting out to change the behavior of the student, the most logical and useful thing a teacher can do is to formulate a clear behavioral objective to guide his efforts. We may as well strike directly for the end product we want, which is an actual behavior. If we accept this notion, then the first step in identifying content is to name the target (S-19) behavior to be achieved by the learner. A behavioral objective which could well have been one of the behaviors set up for this workshop would (S-20) be: (OV 2 on) "Using appropriate terminology, the student will draw a model of or describe the general pattern of (a) student-teacher verbal interaction, (b) nonverbal communication, (c) simulation, (d) microteaching" (OV 2 off). Please keep in mind that this workshop has chosen to concentrate on the concept formation phase of the development of a total behavior, rather than to carry through to the actual use of the concepts in actual teaching behaviors.

After naming a target behavior, the lesson planner must make an inventory of the component elements required to produce that behavior (S-21). That inventory will probably include some concepts, verbal information, instrumental acts, and vocabulary — all of which the student must possess in order to act as the behavioral statement reads (S-22).

Now we must program the content in a learnable order. By the word (S-23) "program" we mean the most learnable sequential arrangement of the mediated referents for perceptual input, verbal interactions, and behavioral trials for efficient attainment of the target behavior.

Here we have introduced some new terms: mediated referents, verbal interactions, and behavioral trials. I think it is clear that we are now naming some of the devices we have been using to present to you learners the carefully identified contents of this workshop. Those consist of four major sets of concepts: one set consisting of Flanders' and Amidon's concepts of interaction analysis; one, of Galloway's concepts of nonverbal communication; a third, of Allen's concept of micro-teaching as a technique for developing instructional competence; and another, of Cruickshank's concept of simulation as a device for providing realistic experience.

Note that the four sets of concepts — once they are understood — might well lead to the behaviors described as our objectives. To make this point clearer, let us go back to the content of the workshop and recall the experiences. Within, for example, the concept of micro-teaching, we can isolate specific examples of these four aspects of a program. We can identify concepts, instrumental behavior, vocabulary, and data which go to make up the phenomenon of micro-teaching.

(S-24) To understand micro-teaching, we must understand certain concepts about it. There is the concept of a scaled down lesson, the concept of a small class, certain concepts of (S-25) process, or instrumental acts such as the concept of a teach-reteach sequence and its consequences. We must understand and be familiar with the (S-26) vocabulary associated with it, such as the name micro-teaching, a teach-reteach sequence, and teaching skills. We must know certain (S-27) data about it, such as the fact that normally a micro-teaching class consists of three to seven students, and that the length of a micro-teaching lesson is usually from five to ten minutes (S-28).

Each of the three components which form the substantive content of the workshop can be broken down in the same way. Within interaction analysis, nonverbal behavior, and simulation there are concepts of processes and their consequences, concepts of the objects involved in them, essential vocabulary, and relevant data about the concepts.

(S-29) Our task now is to program the instructional action into an effective flow pattern, and the flow pattern for this workshop is indicated now on the (S-30) projection. Assuming that we are familiar by this time with this symbolic picture of the workshop pattern, let me reserve further comment on it for a few minutes.

(S-31) Conceptual learning depends heavily upon sense perception of the phenomena with which we hope the students will become familiar. Media are our ways of making those phenomena perceivable. It is appropriate, therefore, to think of media as the sense-perceivable portrayals of referents as used in the programed unit to produce a target behavior (S-32). (OV 3 on) Here is a representation of several kinds of media. Books are included, but it must be remembered that, for a book to serve the purpose of sense perception, we have to be referring to its pictorial content and not its verbal content. Similarly, we are referring to the use of slides, projectors, television, and other devices with reference to their use of pictures, diagrams, models, or other actual portrayals rather than to the transmission of verbal material (OV 3 off).

(S-33) To give emphasis to that distinction, note the division here in the educational uses of media and language. (S-34) Media are most significant with reference to image, portrayals, and perception. (S-35) Language is most significant with reference to symbols or signs, representation, and recall and interpretation. (S-36) Signs or symbols stand for images, but are not the same as the images themselves. Representation is a verbal allusion to what has been portrayed, but is not a portrayal itself. Recall and repetition is a verbal report of what has been perceived, but is not the same as perception itself. Consequently, language in any of its forms is a secondary level of response to what has been perceived through the senses by means of media (S-37).

This is a critical distinction between two complementary but distinctly different and noninterchangeable processes of learning, perception, and concept formation. It is the failure to observe this distinction which has forced students to the memorization of symbolic material without adequate conceptual understanding of the referents or the actual phenomena to which those verbal materials refer. We should be aware that emphasis on this distinction does not imply that all instruction at all levels has to begin with actual sense perception, but it does mean that when verbal instructional processes are to be used, they will not be effective in developing understanding unless the students have already had, and bring with them, the sensory inputs from previous perceptual experiences which make it possible for verbal instructional processes to lead them to insights and understandings (S-38).

There is much more we could say about the media aspect of an instructional unit, but perhaps this will be enough for now. (S-39) Consequently we can turn our attention to the fifth element, the instructional process.

Instruction is, above everything else, a verbal (S-40) interaction between the teacher and the student. We can define it as the plan of teacher-student interaction to be employed as the student perceives the mediated referents and acquires the intended products — concepts and terminal behaviors. These interactions are to be planned in the protocol which includes the presentation of the idea, the observation of examples of it, and some discussion and closure for the formation of a clear concept. Media are to be used to give vividness to the presentation of the idea, the observation of examples, and the discussion and closure process (S-41). In the case of this workshop we leaned heavily on videotape and other related media such as 16mm. film, and on discussion which was amplified by the use of media for the closure function.

(S-42) At this point we should look again at the behaving-learning cycle and note that this workshop was planned to activate the first and second phases of the learning cycle, that is, sensory intake and concept formation. At the perceptual level we have been exposed to four kinds of processes which might occur in a teaching-learning operation. At the concept formation level, we have been involved in discussions aimed at developing insightful concepts about what we perceived. We must remember that these are the first and second steps toward the making of decisions and the use of these concepts and behaviors in our own teaching (S-43).

The two remaining steps, decision making and trial, will remain for us to carry out when we return to our campuses after the workshop is finished. It would be desirable to carry them out here if it were possible to set up something equivalent to the student teaching or internship programs that characterize most of our teacher-education programs (S-44).

Now we have looked at the five component elements of an instructional (OV 4 on) unit and of this workshop. We have attempted to see each one in isolation. Let's put them together and see them as a composit in the workshop pattern. Let's see how the teaching-learning relationship of the workshop was programed to match and facilitate the learning process. (OV 4 off).

At the (S-45) bottom of this projection, we have the learner's behavior cycle put into a straight flow plan to enable us to construct the workshop pattern above it. (S-46) Now we can add the workshop flow plan and see the relationship between it and the learner's cycle. The first taped presentations were for our perceptual input. The discussion and closure sessions following the first presentations were for our conceptual organization. The second tape was the presentation of a fresh set of perceptual inputs — again followed by discussion and closure sessions to assist us in the formation of clear concepts of what we had perceived.

We are involved at this point in a discussion of the relationship between the workshop pattern and the learning-behaving pattern of the student, which is also an attempt to contribute to the clarification of the concepts which have been forming here (S-47). This will be followed by a discussion of the media which have been used at every point checked in the workshop pattern, also designed to clarify concepts the workshop has set out to establish. Decision making and the trial aspects of our behaviors will occur when we go back home (S-48).

It is appropriate now to recall the educational uses of media and language. At this point we can note that we really have two language modes

(S-49), one of which is verbal and one, sensory. The sensory language mode is needed when we wish to speak to the perceptual senses; this mode requires the use of images, portrayal, and sense-perceivable phenomena.

We need the symbolic language mode when we wish to speak to the memory or storage area and evoke oral communication of the concepts already formed, or evoke recall of percepts stored, and guide the learner as he organizes them into concepts. Media serve best to portray objects and events for perception. They are not used at their best for transmitting words as a substitute for the use of the vocal cords.

Again, I strongly suggest that this distinction lies at the root of this workshop. When verbal instruction or discussion precedes the essential perception, communication breaks down and learning deteriorates from concept formation to verbal memorization.

Closely related to this type of breakdown is the misassignment of language to inappropriate concepts. We can illustrate this by two (S-50) people who are not communicating because their concepts and vocabulary do not agree, although both of them are using the same terms. Their difficulty lies in the fact that they have different concepts, without knowing it.

We can also illustrate it by two (S-51) other people who are not communicating. Although they have the same concepts, they have assigned different terms to them, and they are not aware of this difficulty.

Finally, we can illustrate what we would like to see developed (S-52) by two people who are communicating because they have acquired the same concepts and are using the same language to refer to them (S-53).

Now when verbal instruction is restricted to guiding attention to what the student is perceiving, to the way he is organizing his concepts, to the way he is making decisions, to the way he is carrying out adjustive acts, and to the way he is interpreting the feedback from his adjustive behavior, then it can be educative at all phases of the learning-behaving cycle (S-54). As the student is perceiving real referents or mediated referents, what the teacher should do is to direct the student's attention towards those aspects of the referent he should be perceiving.

Then, as the student begins to try to interpret what he has just seen, the teacher's verbal behavior through this interaction should stimulate him to find possible interpretations. Again, as the student makes decisions, and as he carries out his adjustive acts, the teacher should help him recall whatever he knows that is relevant.

Such attention guiding is also important at the feedback stage. A student should be helped to interpret the feedback so that it results in constructive conceptual change and does not result in damage to the student's self concept. In this way verbal stimulation is not something which is imposed on the student's cognitive cycle — it facilitates the student's own processes rather than attempting to substitute for them. The student, under the teacher's stimulation, is doing his own perception, thinking, decision making, and trying (S-55).

In recapitulation, let's look again at the flow plan for the workshop. Orientation came first. The first presentations were made. Discussion and closure was then provided. The second set of presentations followed the same pattern: presentation, observations where needed, and discussion and closure.

Now we are in the structural analysis phase. We will soon move into a review of the use of media in the workshop and as a vehicle for learning. (OV 5 - "P" - on). The media were used to give the workshop participants intensive perceptual experiences at the points indicated on this projection. The media were also used to assist in the verbal interaction process (OV 6 - "C" - on) for concept formation and closure at the points indicated on this projection.

(OV 5 and 6) If we then superimpose the portrayal of the instructional process over the portrayal of the perceptual process, we see how intensively media have been used for both purposes: to provide for perception and to assist in concept organization and clarification.

(OV 5 and 6 off) The full cycle of learning now requires follow-up action at home — the use of the concepts acquired here to make decisions about our program content and processes. There are some generalizations which grow logically out of this experience; these are noted in the copy of this paper which you will receive, and are presented for your serious consideration and reaction.

7

MEDIA ANALYSIS SESSION

This session was conducted in three parts:

PART I. Vernon Gerlach, Arizona State University, Videotape

In this segment, Dr. Gerlach emphasizes that the workshop experience has been a relatively unique one in that almost all of the instruction has been mediated, and that behavior change on the part of the participant has been effected by means of media. He suggests further that an analysis of the way in which media was used in the workshop might lead to evolving certain principles and critical standards for media selection and utilization.

Part II. Research Assistant, AACTE Media Project, Live

This segment of the presentation is concerned with general principles for media selection and analysis with particular reference to teacher training programs:

> When discussing media selection and analysis, it is of prime importance to consider the kinds of conditions which we wish to

establish in a teacher training program. In some instances, the conditions which we establish are conditions which are identical to the conditions which the student teacher will face when he is out on the job. However, this is not always practicable, nor is it always desirable. There is little profit in sending out a student teacher to face a real, live classroom situation until he has had the training to cope with the kinds of problems that he might face there; until he has a behavioral repertoire to call on; until he has had the perceptual input on which to form concepts about appropriate teaching behavior.

Sometimes, we may wish to provide equivalent practice. The student teacher preparing to teach fifth graders may, as far as we know, learn everything we can teach him even if he does his practice teaching with fourth or sixth graders. However, the same limitations apply here as in the case of establishing identical conditions. We may not have the facilities to provide such situations for all of our student teachers, and the student teacher needs a wide variety of responses on which to call if he is to face the problems of an equivalent classroom.

Therefore, the best that can be done in the circumstances is to provide analogous conditions. In this case, we do not present exactly the same conditions which will exist when the student teacher enters the classroom to teach "for real," but we do present conditions as close to those as we can possibly get in the instructional situation.

And the wonderful part about the newer media is that we can bring all kinds of varied stimuli into the instructional setting. We can capture teaching situations and teaching problems and replay them again and again for illustration and discussion. The nonverbal cues given out by the children in the film which we saw in the nonverbal session can be used over and over as examples of what Galloway is talking about. We can design a variety of responses to a number of teaching situations, as Bert Kersh has done, and present them to the student teachers in such a way that they are able to "stretch" their own response behavior without the pressure of having to react in a live classroom atmosphere.

So, if we see the role of media in teacher education as providing analogous conditions, then let us try to establish some criteria for the selection of appropriate media to provide those conditions. The great question always remains in a teacher training program: Although the student teacher did well in his student teaching situation, will he do as well in his real life job? The fact that this question does persistently haunt trainers of teachers is ample testimony to the fact that we recognize a gulf between conditions in a nonpractice situation and conditions in the student teaching situation. It is exciting to see that the two methodological presentations in this workshop are deeply concerned about this dimension.

Let me use a graphic model to discuss the principle involved. We have said that we use media to provide analogous conditions. Another way of putting this would be to say that media provide surrogate situations which stand for, or are analogous to, the real situation. In the illustrations which follow, we will use letters to designate the surrogates (or the mediated situations) and numbers for the real situations. The example to be used is one with which we are all by now familiar. The objective we are setting is to train the student teacher to deal effectively with a constantly disrupting child in a classroom of 30 children.

How would we present such a situation to a student teacher? The most abstract way would be to describe the situation verbally in a lecture and present alternative solutions to the student teacher for his information. So, broken down, that instructional situation might look like this:

$$S_a \quad S_b \quad S_c \quad S_d$$

In this case, the elements of the situation are:

A social context = S_a = the other children in the class
A task = S_b = the work in which the children are engaged
An action = S_c = the disruptive behavior of the child
A child = S_d = an abstract "problem child"

Let us now consider the presentation of this situation as a case study in the text; let us call the child Jack Brogan and provide cumulative records and background material on Jack to make him seem more alive. In this case, the diagram might look like this:

$$S_a \quad S_b \quad S_c \quad S_D$$

The child has moved closer to reality for our student teacher, but the other elements of the situation have remained the same.

Let's go further now and imagine a skillfully produced 16mm. film showing real children in a real classroom situation engaged in a defined task. In this case, the subscripts would be getting larger as all the elements in the situation move closer to reality:

$$S_A \quad S_B \quad S_C \quad S_D$$

So now you ask your student teacher: What would you do now, Pat Taylor; given this situation in which you personally are involved, how do you respond?

But we still do not know for certain that the student teacher will react in a real situation in the same manner as he does in the surrogate situation. Only when we can provide evidence that he will can we safely assume that we have selected an optimum medium. The functional relationship, established by empirical observations, must be there. If it is not, we're only guessing.

So, if I may be very abstract, the essence of media selection in a teacher training situation lies in the ability of the professor to select those media which gradually extend the stimulus control from little letters:

$$S_a \quad S_b \quad S_c \quad S_d$$

to large letters:

$$S_A \quad S_B \quad S_C \quad S_D$$

to paired stimuli:

$$S_{A1} \quad S_{B2} \quad S_{C3} \quad S_{D4}$$

in which the real situations (i.e., the numbers) become increasingly dominant and the surrogates (i.e., the letters) become increasingly recessive:

$$S_a1 \quad S_b2 \quad S_c3 \quad S_d4$$

until the reaction of the student teacher (i.e., the correct or desired reaction) takes place in the presence of the real situation only:

$$S_1 \quad S_2 \quad S_3 \quad S_4 \quad = \quad R \quad = \quad \text{correct}$$

I do not wish to belabor the obvious, but it must be emphasized that the proof of the pudding of micro-teaching or simulation or any other method ultimately lies in the answer to the question: How well does the student teacher's learning transfer? How does he behave when all the letters are gone, and only the numbers remain? Fortunately, the research accompanying the demonstrations which you've seen in this workshop give us some real data to support their validity.

So the criteria for media selection in a teacher training program is not the quantity of sophisticated machines which can be assembled in the training laboratory, but the effectiveness of the mediated materials in providing surrogate situations as close as possible to reality: situations which will successively approximate reality so that the response of the student teacher in a reality situation can be predicted with some degree of accuracy. And the criteria for the effectiveness of a teacher training program, involving the use of the newer media, is how well the student teachers react in a real, live classroom situation.

Let us now consider how these principles which should govern our media selection and utilization can be fitted into a general model of instructional strategy. Consider this model as a frame of reference. It is very simple; we will all be able to use it after just a moment or two of introduction. Actually, its simplicity stems from the fact that each of us has used it before in one form or another. Here it is — graphically portrayed.

Taking it step by step, we begin with objectives. As Woodruff points out so eloquently in his paper, it is inconceivable that any system can begin without a statement of behavioral objectives. This is the first step in the progression up the stairs until one reaches his terminal behavior.

The second step is the pre-test. This could be dressed up in fancy terminology. We could talk about input and behavioral repertoire and environmental antecedents. However, we are speaking now of a system of media selection for the classroom teacher (be he kindergarten or university teacher). This system must be simple, functional, and workable. Any teacher must be able to use it successfully, and he must be able to use it without running the risk of omitting an essential aspect in the instructional learning process.

So, we pre-test. Pre-test must be used in the broadest possible sense. First, we must determine whether or not the learner already possesses that which is defined in the objective. Obviously, we don't need to select media, we don't need to plan instruction for a learner who has already learned what we want him to know. But if the learner has, we must also ascertain whether he is ready for the instructional learning task. Call it readiness if you will. For example, children who can't multiply, can't learn long division. Girls who can't read the calibrations on a measuring cup will undoubtedly not achieve some of the objectives in the cooking class.

The third step in the model is the selection of an instructional strategy. This includes selecting the medium or media, the criteria for which we have already discussed in terms of establishing conditions for learning. What kind of conditions or environment does the teacher wish to establish for the instructional learning process? One important consideration is: Under what conditions do we want the learner to exhibit the terminal behavior which we have specified?

The last step is called evaluation. When it is all over, when the last bell has rung, do we have any evidence that these future teachers will display the behavior stated in our objective? We must gather this kind of evidence, or the instructional learning cycle remains incomplete. We must evaluate, rate, score, test, and do all the things indicated for our particular objective which fall under the heading of evaluation.

I'll take no more time to discuss evaluation, except to emphasize that the newer media can play an important role in the evaluative step. Good teachers use films in the evaluation process; they use the overhead, the videotape or audiotape recorder, the slide, the motion picture. These things aren't new, and I will not elaborate on them just now. Now, unless our evaluative techniques demonstrate to us that our criteria have been met, we have to loop back — we must back down the stairs. Either we must amend our instructional strategy (or select a new one), or we must change our objective. Maybe the methods we used; maybe the media we selected; maybe the practice we provided the learner; maybe any or all of these need modification or even rejection in favor of another alternative. On the other hand, it may be that we set our sights too high, that our objective is unrealistic; perhaps we should strive for a less complicated behavior before we go for the more complex.

This, then, is the four step model. It is not new, it is not exciting, but it does have all the ingredients. And when media selection is done in the light of such a model of instructional strategy, and with regard to the kinds of conditions for learning which we wish to establish, then media can be said to be used in an integrated rather than an additive way in instruction.

PART III. Dr. Gerlach on Videotape

In this segment, Gerlach selects three basic principles as examples of the kinds of considerations which should be borne in mind in media utilization. These selected principles are symbolic substitution, i.e., providing the referent before the symbol or a discussion of the characteristics of the referent; selective perception, i.e., guiding the learner's attention to the main issue, eliminating competing stimuli; and decision making, i.e., getting the learner involved in making decisions and giving him reinforcement or confirmation for his response.

Using graphic illustrations taken from advertising, Gerlach describes these three principles, which he labels "Wide Boots," "Motorcycle," and "Decision Making." He goes on to apply the principles to examples taken from the videotape presentations used during the workshop. The technique is one which involves the participants in making decisions about the videotaped excerpts and in forming critical opinions about how media were used in the workshop and how this might be relevant to media utilization in their own work.

8

As was noted earlier in the report, participants in the pilot workshop felt that greater emphasis should be placed on the fact that the substantive content of the workshop (interaction analysis, nonverbal behavior, micro-teaching, and simulation) was illustrative rather than exhaustive. In an effort to respond to this feedback, a final session was programed into the workshop format.

Participants were exposed — very briefly with no discussion — to three other innovations in teacher education which could just as well have been used in the workshop. These were the Simulation program developed by Bert Y. Kersh in Oregon, the Innovations in Teacher Education program at

Stanford University in California, and Critical Moments in Teaching, a film series produced at the University of Missouri at Kansas City.

Each of these three alternatives was presented via motion picture.

1. Classroom Simulation: A new dimension in teacher education illustrated the program which was then operative at the Oregon College of Education. It showed the student teacher being confronted with a situation and the manner in which filmed responses were presented to the student teacher depending upon his reaction to the initial incident.
2. ITEMS: This film was produced under a program known as Innovations in Teacher Education at Stanford. It offers a series of "quick and dirty," as the phrase goes, incidents that could occur in the classroom. Several alternative actions by the teacher are acted out and then the student (or viewer) is asked to offer some additional behaviors which might resolve the problem.
3. Critical Moments in Teaching: The film used was "What Do I Know About Benny," one of a series of five films developed with a view to the variety of psychological circumstances which infuse and surround teaching. All of these films are open ended and leave the resolution of the problem up to the student. The films are applicable teaching instruments for individuals, small groups, and large presentations.

The inclusion of this component on alternatives in the workshop seemed to achieve its objective, and it was well received in all regional workshops.

Part III

THE RESULTS

The task of evaluating the workshop was phrased in such a way in the contract as to allow great freedom in setting up criteria and evaluative measures. A number of arbitrary decisions were, therefore, made at an early stage of the project as to how the evaluation task would be approached.

It was decided that since the pilot workshop, which was to be held in January 1967, had different goals and a different audience from the regional workshops which followed (i.e., its goal was to test the effectiveness of the format which had been developed, and its audience was drawn from selected institutions all over the country) it should be treated in the evaluation as a separate entity. An in-depth study of the participants in the pilot workshop was conducted to try to measure the effectiveness of the workshop as an instructional experience — "effectiveness" to be seen from the point of view of change in the participants, in affective, cognitive, and behavioral terms. The regional workshops had an ongoing evaluation component associated with them to evaluate the effectiveness of the total project as a means for dissemination and effecting educational innovation.

PILOT WORKSHOP EVALUATION

The testing design which was evolved to measure the pilot workshop is shown below:

	1. November 1966	2. January 29-31, 1967 PILOT WORKSHOP	3. May-December, 1967
FORM OF TEST	**PRE-TEST** Individual on-campus visitation. Information sheet for participants, personal interview.	**PRE- and POST-TEST** Semantic differential test of attitude. Computerized objective test.	**POST-TEST** Individual conversations with participants in person or via telephone.
OBJECT	To ascertain environmental factors at work to encourage or inhibit the use of media and to determine the attitude towards media and innovations in general.	To measure the attitude of the participants toward media, and to test their knowledge of the three approaches to teacher education.	To discover whether participants made or attempted to make any changes in their programs as a result of their participation in the workshop.

Figure 1. Evaluation Design

A number of previous studies in different areas were considered in evolving this design. These included research studies on teacher attitude toward media. Careful consideration was also given to the recommendations of the EMIE Committee.[34]

Previous studies of teacher attitude to media have frequently arrived at correlations between certain factors in the background or personality of the teacher and specific attitudes toward media. A recent survey made by the AACTE TEAM Project on "New Instructional Media Utilization in the Pre-Service Professional Preparation of Teachers"[35] asked for general factors which restricted the acceptance of instructional technology in teacher education.

In response to this question, 44 factors were isolated. The first 10 are:

1. No restrictions
2. Lack of money
3. Lack of or poor quality of available materials
4. Lack of time
5. Lack of familiarity with materials and value of technology
6. Lack of space, facilities, equipment
7. Tradition-bound; inflexible
8. Lack of instructional technology leadership
9. Lack of training in instructional technology utilization
10. Skeptical about effectiveness of instructional technology.

Additional authority is given to this listing by the fact that it correlates highly with the sources of resistance preventing the use of educational media listed by McIntyre:[36]

1.	Limited departmental funds for purchase or rental of materials	80%
2.	Suitable materials not available for college use	43%
3.	Lack of information on college materials	43%
4.	Lack of technical assistance to aid in preparation of materials	42%
5.	Not enough time to locate good materials	40%
6.	Lack of adequate facilities for showing materials	38%
7.	Films, equipment, or operators not available when needed	33%

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[34] "Educational Media Institute Evaluation Project: Evaluation of Summer, 1965, NDEA Institutes." San Jose, California: Educational Media Institute Evaluation Project, November 1965. 72 pp.

[35] "Questionnaire on New Instructional Media Utilization in the Pre-Service Professional Preparation of Teachers." Washington, D.C.: American Association of Colleges for Teacher Education, Teacher Education and Media Project, May 1964. 8 pp.

[36] McIntyre, Kenneth M. "Study to Determine Specific Sources of Resistance to the Use of Audiovisual Materials by College and University Teachers, and the Development of Procedures for Overcoming the Barriers to Optimum Use." (Title VII (A) National Defense Education Act of 1958, Grant No. 731052, USOE-HEW.) Chapel Hill, N.C.: University of North Carolina, 1963.

It was realized that these factors can be divided into two categories:

1. Those pertaining to the attitude or knowledge of the faculty
2. Those pertaining to the institutional environment of the faculty.

It was presumed that the first category would be affected in some way by the workshop experience and that the institutional factors would not. However, the value of the workshop might well be measured by how far and in what way the participants tried to alter the environmental factors after their workshop experience, as well as by measuring their change in attitude and increase in knowledge.

With this in mind, an information sheet was designed to ascertain certain facts about the environment in which the participant operated. There were two forms of the information sheet: one for the participant himself, which gave his professional background and his perception of the media facilities and equipment available to him on campus; and one designed to be answered by the director of the instructional materials in the institution.

These information sheets were administered in November and December 1966 in a face-to-face interview situation with one of the project staff. There is a good deal of authority for choosing an interview situation. The main advantages of a mailed questionnaire (i.e., economy, easily tabulated data for a large scale survey) were not applicable in this particular survey where the number of participants was small (40) and where much of the data to be gathered was non-quantitative and impressionistic. Again, a number of sources were considered in deciding on this interview approach. The main objection (that of interviewer bias) was countered by the fact that all the interviews were conducted by the same staff member.

A follow-up interview based on the same format was administered some months after the workshop had taken place, from June until December 1967.

The second phase of the evaluation (that pertaining to the attitude and knowledge of the participant) took place within the pilot workshop itself. A pre- and post-test formed the first and last activities of the workshop. Most studies on teacher attitude to media have used Thurston's or Lickert-type attitude scales. However, after consultation with research specialists, it was decided to set up instead a test utilizing the Semantic Differential technique. Hopefully, this would measure any change in the participants' attitude toward the innovative approaches and toward media in education.

Participants were also given an objective, multiple choice test to measure their knowledge of the subject matter. Given that one of the main objectives of the workshop was to demonstrate the integrated use of media in instruction, it seemed appropriate to use the computer in the testing sequence to demonstrate the speed and efficiency of the computer in analyzing data.

Therefore, plans were made with the Computer Center at the University of Maryland to develop a suitable program. This provided an individual printout for each participant showing his performance on each test: which questions were right, wrong, or omitted, and giving a bibliographic reference for those questions which were wrong or omitted. The results of this test were analyzed by the computer during lunch on the last day of the pilot workshop and were given to each participant as part of his final package of materials.

The first session which participants attended at the University of Maryland Pilot Workshop was a Testing Session in which they were given both the Semantic Differential Test and the Objective Multiple-Choice Test. Participants were tested again just before lunch on the last day of the Workshop. The results of the Semantic Differential were tabulated, and since the group was small, were analyzed by the Kolmogorov-Smirvov Two-Sample Test of significance.[37]

Only one dimension of one concept was found to have changed beyond the 0.05 level of significance. This was Videotape Supervision, which was perceived as being more potent at the end of the Workshop. The Team Approach in Teacher Education and Interaction Analysis were perceived as being more potent, though not significantly so. Only the perception of Micro-Teaching changed on all three dimensions (Evaluation, Potency, and Activity) though, again, not beyond the level of significance.

The results of the objective multiple choice test were considerably more encouraging. Both the pre- and post-test were analyzed by the computer on the University of Maryland campus during lunch on the last day of the Workshop. Each participant was provided with an individual printout of his performance as part of his take-away package. This printout gave his response and the correct response for each of the questions on the pre- and post-test, as well as providing a bibliographic reference for the place to find the correct answer in each case.

A summary sheet was also provided by the computer. This gave the total student performance on the pre- and post-test. It can be seen from this that there was a significant increase in group mean from the pre-test to the post-test (from 14.25 to 18.78) and a decrease in the standard deviation (from 3.73 to 3.16).

Some months after the pilot workshop (i.e., from July to December 1967) a follow-up study was made to discover whether or not participants had been influenced by their workshop experience, either to implement any of the approaches demonstrated or to change in their perception or use of instructional media. This survey was conducted on an opportunistic basis, between regional workshops, and took the form of either personal interviews or telephone conversations.

In the succeeding regional workshops, no formal testing session was provided. Instead, each participant was given a revised version of the objective test as part of his registration package and told that he could test himself, if he wished, as he went through the workshop. Again, a computerized printout of the correct answer and the bibliographic references to each question were provided for all participants as part of their take-away package.

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[37] Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw Hill, 1956. pp. 127-36.

Based on the data from the pre-workshop visitations, transcriptions of the taped interviews, and the information sheets, each of the 36 participants from the pilot workshop was assigned a loading on each of the eight dimensions perceived by teacher educators as having an effect on educational innovation. A maximum of five points was possible on each dimension, giving twenty possible points in the environmental factors (i.e., money, materials, time, space) and twenty possible points in the personal factors (i.e., familiarity, training, inflexible, skeptical). (These last two factors were changed to "flexible" and "open-minded" to make all dimensions positive.) A maximum of four points was possible in "implementation," i.e., for micro-teaching, interaction analysis, nonverbal behavior, and the increased use of media in instruction.

Analysis of Environmental and Personal Factors Affecting the Utilization of Media by Pilot Workshop Participants

PARTICIPANT NUMBER	ENVIRONMENTAL FACTORS	PERSONAL FACTORS	IMPLEMENTATION
1	12	15	1
2	8	9	0
3	5	9	1
4	8	8	0
5	10	16	4
6	13	16	3
7	5	18	3
8	18	18	2
9	19	18	4
10	19	20	1
11	12	16	4
12	20	14	1
13	20	20	3
14	19	20	3
15	18	13	2
16	20	20	4
17	8	19	4
18	18	20	3
19	20	20	4
20	8	18	4
21	20	19	4
22	11	14	4
23	19	12	0
24	12	18	4
25	20	8	1
26	19	10	2
27	20	20	3
28	9	5	0
29	9	10	1

PARTICIPANT NUMBER	ENVIRONMENTAL FACTORS	PERSONAL FACTORS	IMPLEMENTATION
30	9	18	4
31	9	18	4
32	8	11	2
33	13	17	2
34	8	10	1
35	9	13	3
36	19	13	3

The tabulated results show that those who implemented the approaches were more likely to be those whose rating on personal factors was higher than the environmental rating, and that the environmental factors were not such a strong deterrent as they had been perceived.

For example, look at Participant #30 (environmental loading of 9, personal loading of 18, implementation of all four dimensions). This participant comes from a small institution with limited funds and facilities, yet has succeeded in implementing all of the approaches which were demonstrated in the pilot workshop, and has also increased the use of media in his own instruction.

There were, however, a few cases which seemed to be exceptions to this trend — cases in which participants with high personal factor loadings did not implement any of the approaches. In discussion, it appeared that a question of "relevance" is involved. These participants were concerned with other innovations and did not feel that the workshop components were relevant to their present work. For example, Participant #10 (environmental loading of 20, personal loading of 20, and implementation of only one dimension — in this case the increased use of media) is not directly concerned with teacher education, and the three components were not directly relevant to his work.

In the succeeding regional workshops, no formal testing session was provided. Instead, each participant was given a revised version of the objective test as part of his registration package and told that he could test himself, if he wished, as he went through the workshop. Again, a computerized printout of the correct answer and the bibliographic references to each question were provided for all participants as part of their take-away package.

TOTAL PROJECT EVALUATION

One valid index of the effectiveness of the total project may well be the actual number of regional workshops held and the number of requests, written and verbal, for additional workshops or for an expansion of the project in one form or another.

An ongoing evaluation of the regional workshops was made by Reaction Sheets given to all participants as part of their take-away package. In these reactions sheets, the Workshop objectives were restated and related questions were asked to try to determine whether or not participants felt that their own behavior would be affected by what they had experienced.

Only about 30% of these reaction sheets from each workshop were returned, but the responses were found to be considered and thoughtful and were a great help in revising and improving the presentations in a way which made them more relevant to the needs of the participants. The reactions were, on the whole, extremely positive. This may, of course, be a factor of the small sample returned, but if one were to extrapolate from the results of a larger return on the questionnaire which will be discussed next, then the majority of all participants felt that the workshop was a very worthwhile professional experience.

In early December 1967, a questionnaire was designed and mailed to all participants in the pilot and regional workshops. This questionnaire had two main objectives: to try to determine whether participants in the workshop felt that it was an effective experience, and to try to determine whether they were implementing in their own work any of the approaches which had been presented in the workshop. A copy of the questionnaire and its cover letter are enclosed with this report. Of the 560 questionnaires mailed, 420 (75%) were returned. The tabulated results of this survey and a discussion of the significance follows.

The substantive content of the workshop consisted of four approaches to undergraduate teacher education: micro-teaching, interaction analysis, nonverbal behavior, and simulation. How effectively do you think these were presented?

	MICRO-TEACHING	INTERACTION ANALYSIS	NONVERBAL BEHAVIOR	SIMULATION
WELL	70%	64%	58%	68%
FAIRLY	26%	30%	36%	29%
POORLY	4%	6%	6%	3%

Table 1

Most participants felt that the approaches were well presented, although nonverbal behavior was not counted as highly as the other three. This reaction is borne out by comments on the Reaction Sheets, where participants frequently commented that nonverbal behavior was a rather loose presentation, not systematized like the other three.

How well did you consider yourself informed about these approaches before your workshop participation?

	MICRO-TEACHING	INTERACTION ANALYSIS	NONVERBAL BEHAVIOR	SIMULATION
WELL	22%	33%	11%	12%
FAIRLY	42%	41%	34%	45%
POORLY	36%	26%	50%	43%

Table 2

As was to be expected, since interaction analysis is the most established of the four approaches, more people considered themselves well-informed about this technique than about the other three. Nonverbal behavior, the newest in terms of its application in an educational context, was the least well known.

Were you using any of these approaches before your workshop participation? Are you presently using any of these approaches in your own work? Do you have any plans for using any of these approaches in the future?

	MICRO-TEACHING	INTERACTION ANALYSIS	NONVERBAL BEHAVIOR	SIMULATION
PAST USE	24%	35%	20%	21%
PRESENT USE	41%	52%	38%	33%
FUTURE USE	88%	82%	76%	87%

Table 3

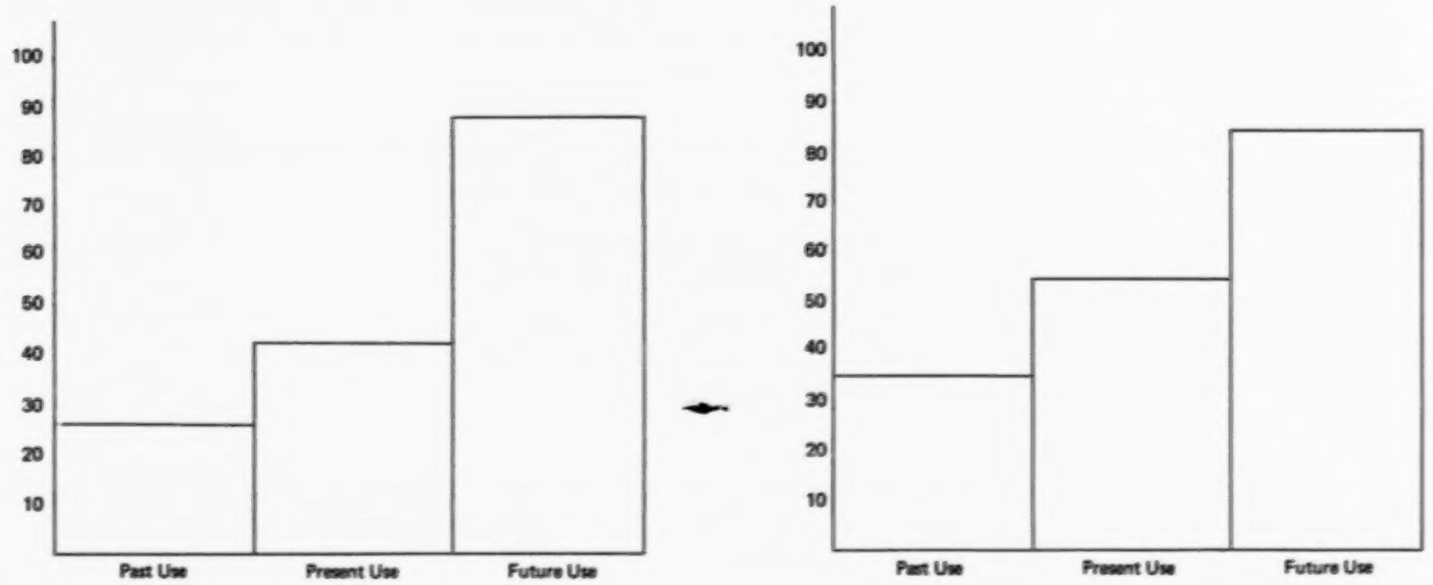
Questions 3, 4, and 5 were considered together for the purpose of analysis. This was one of the most significant and encouraging changes indicated by the questionnaire results. It can be seen from the following bar graphs (page 91) that a large number of participants who were not using these approaches before their participation in the workshop are currently using them in their own work, and that an even higher percentage of them plan on using one or more of the approaches in their future work.

On your return to your own campus, did you inform the rest of your faculty about what you had experienced?

YES	NO
85%	15%

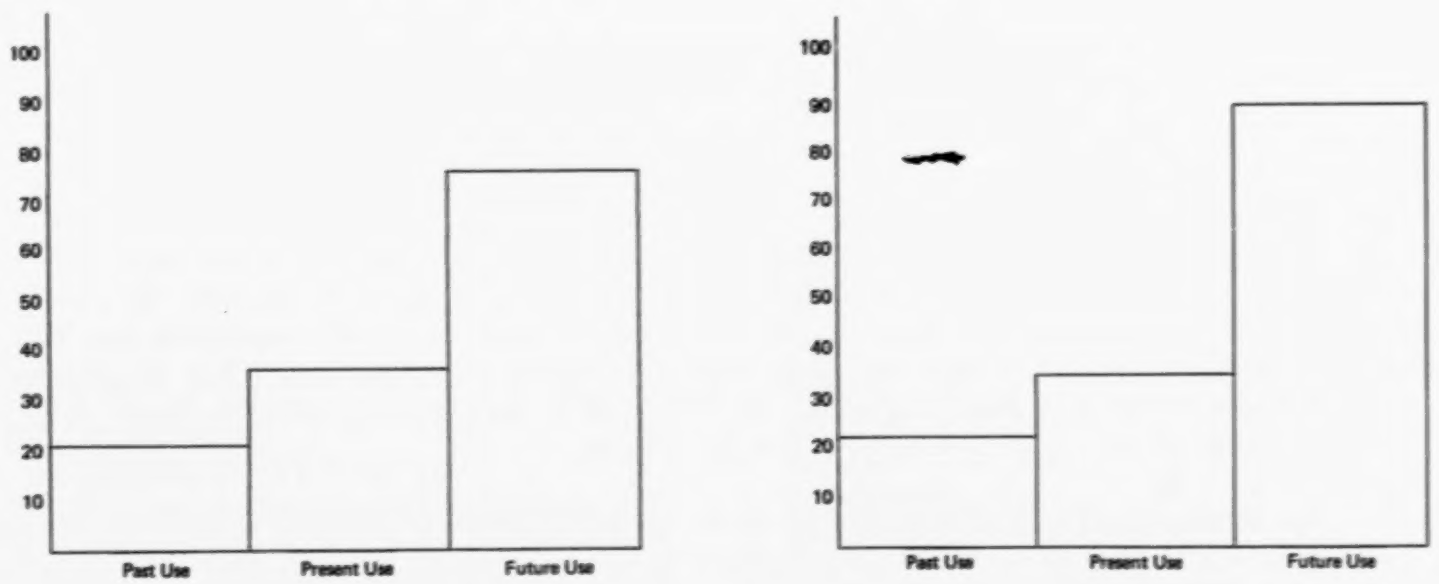
Table 4

Bar Graphs Showing Past, Present, and Projected Usage Patterns of Micro-Teaching, Interaction Analysis, Nonverbal Behavior, and Simulation as Indicated by the Responses to Questions 3, 4, and 5



Micro-Teaching

Interaction Analysis



Nonverbal Behavior

Simulation

Are you cooperatively working with any of your faculty on any of the approaches discussed in the workshop?

YES	NO
80%	20%

Table 5

Questions 6 and 7 were concerned with trying to discover whether the experience of a workshop of this kind is restricted to the actual participant, or whether participants tend to disseminate information about what they learn and then work cooperatively with their colleagues on related projects. The results of the questionnaire indicate that a very high percentage of the participants did disseminate information about the workshop and are now working with their fellow faculty on projects involving the approaches demonstrated in the workshop.

The relationship between media and learning was emphasized during the workshop. How do you think this was presented?

WELL	FAIRLY	POORLY
52%	42%	6%

Table 6

The response to question 8 was rather disappointing. One of the main objectives of the workshops was to "make the relationship between media and learning both visible and rational." It was somewhat disturbing to discover that only slightly more than 50% of the participants felt that this was well presented.

Do your primary responsibilities fall within administration or instruction?

ADMINISTRATION	INSTRUCTION	50-50
43%	50%	7%

Table 7

Question 11 was purely a diagnostic question to try to discover whether workshop participants felt that the project had succeeded in its overall objective to attempt to bridge the gap between the researchers and experimenters and the ongoing programs of teacher education. The response was overwhelming and heartening. Of the 420 responses received, only 8 people responded negatively to this question.

In summary, it might be said that the evaluation component has shown that the Workshop in Teacher Education has been extremely effective, that the vast majority of those who participated in the workshops are developing new programs using the four approaches which were demonstrated, and that almost without exception participants feel that the workshop is a useful vehicle for dissemination.

YES	NO
98%	2%

Table 8

Part IV

CONCLUSIONS

It has long been taken for granted that the teacher educator — the teacher of teachers — will put the talk about research and innovation which he receives from a variety of sources together with his ongoing classroom practices. In bridging this gap between the "producer" of educational innovation and the intended "user," it has been assumed that the result would be an upgrading of the ongoing program of teacher preparation. "The recent research in teaching and work in theory indicates that this is an extremely difficult task, and that an assumption of this magnitude is more likely to be false than true."*

The results of this project seem to support the conclusion that, in any effort to bridge the gap between the producer and user of new ways of educating teachers, the user should be approached as a learner. It is necessary to plan and program the presentation of research results to teacher educators in the same manner that they are expected to plan and present their material to their students.

One of the major tasks of this project was to try to design a way of presenting the results of educational research to teacher educators so that the results would be meaningful and understandable. Judging from the feedback on implementation, the project succeeded in this objective. This success leads to a second conclusion, which supports the first. Any effort which is intended to do more than present information must be designed in a manner that is consistent with accepted learning theory. Admittedly, there is more than one accepted way to approach human behavior and learning, but any effort to educate should be consistent with one of these alternatives.

Finally, the need to disseminate widely the results of educational research coupled with the practical limitations of time, resources, and the opportunity to make available to teacher educators throughout the world the talents of one or more researchers lead inevitably to the conclusion that the new technology of education must be applied to the dissemination of knowledge. When such application is made in a manner that is consistent with what we know about how learning takes place, we can shorten that time honored gap between the introduction of a new idea and its implementation in the classroom.

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* The American Association of Colleges for Teacher Education, Professional Teacher Education: A Programed Design Developed by the AACTE Teacher Education and Media Project. Washington, D.C., the Association, 1968. p. 73.